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Address of President*

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I am aware that at the close of the incumbency of the President of this Association, it is customary to call upon him for what might, in polite hyperbole, be referred to as an address. It is in conformity with this custom that I now address myself to you. I have thought I might speak of medical education and of the early activities of this Association.

It would appear that there never has been a time in the history of this country when medical education was entirely satisfactory. We, in Philadelphia, have some pride in the period which extended from about 1835 to the Civil War, during which time two institutions, the Medical School of the University of Pennsylvania, the oldest medical college in this country, and its rival, the Jefferson Medical College, with great faculties, rivaled in influence and prestige their prototypes in Scotland. But it appears that medical education was not then satisfactory, because representatives of twenty-eight different medical schools and forty-eight medical societies gathered in Philadelphia in 1847 and formed the American Medical Association. A good deal of the activity of that first meeting was given to preparing and passing resolutions deploring the state of medical education and medical practice in this country.

It is worth recalling that Nathaniel Chapman was by acclamation made the first president of the American Medical Association, and that he had been a distinguished medical educator in the University of Pennsylvania for a great many years. It was he who first established post-graduate teaching in America. This seems to me to show the importance which was then attached to medical education. Considerable significance may be attached to the fact that a medical educator was designated the first leader of this new organization.

The American Medical Association, during its early years, devoted

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considerable attention to an endeavor to reform medical education. It was not attended with any high degree of success. The various state medical societies, which had officially taken part in the first meeting, also interested themselves in improving medical education within the boundaries of their various states, but their endeavors also did not correct abuses about which complaint was made.

After the Civil War, another effort at reform was made by the so-called Association of Medical Teachers, which organization first met in Cincinnati in 1867, and again in Washington two years later in 1869.

It is, perhaps, well to recall that following the Civil War there was a rapid increase in the population from immigration to this country, and also a large migration into the Mississippi Valley. These developments brought about a situation in which there were too few doctors to meet the demand. It is interesting to note that there was a time, apparently, when there were not enough doctors, contrary to what we are told is the situation today. As a result of the demand exceeding the supply of physicians, there sprang up, in the Mississippi Valley particularly, a large number of low grade medical schools. Their graduates were not accomplished. Mostly, the schools were commercial enterprises organized by groups of doctors, largely for the profit and the prestige it gave them to be connected with a medical school. Conditions not only in medical education but in medical practice were highly unsatisfactory.

A great deal of correspondence took place in 1875 among the leaders of the profession, and particularly those who were on the faculties of medical schools, with regard to launching a new endeavor to bring about improvement in medical education. The result of this preliminary correspondence was the convening of representatives of interested medical schools in the hall of the Jefferson Medical College of Philadelphia on June 2, 1876, for the purpose of discussing various problems and the organization of the Association of American Medical Colleges. The call for the meeting, as related in an interesting old volume, sets forth as the object of the convention: "To consider all matters relating to reform in medical college work." The problem was further stated as one for "the suppression of existing evils and methods, and practical improvement." The names appended to the call for the meeting were as follows:

- J. B. Biddle, M. D., Jefferson Medical College.
- Wm. H. Mussey, M. D., Miami Medical College.
- John T. Hodgen, M. D., St. Louis Medical College.
- J. Adams Allen, M. D., Rush Medical College.
- W. T. Briggs, M. D., Medical Department, University of Nashville.
- J. M. Bodine, M. D., Medical Department, University of Louisville.

In advance of the meeting, twenty schools had given hearty approval of the movement. Twenty-two schools sent representatives, and nine additional schools sent communications.

It is of considerable interest to note the topics of discussion at that meeting as indicating the most important problems then facing medical school educators. Some of the questions put to the convention were as follows:

"Shall the practice of reducing or remitting established fees be countenanced?" It was voted that it was in the highest degree improper to reduce or make a remission in the established fees.

"Shall two consecutive courses of lectures in one year entitle students to become candidates for graduation?" The decision of the body was that if fifteen months had elapsed from the beginning of the first course of lectures to the end of the second course, a student might be considered a candidate for graduation.

The next question, which was given serious discussion, was: "Shall any faculty under any circumstances issue a diploma not bearing the graduate's name?" We have heard that there was a time when diplomas were sold. But it was decided that this practice should not be approved.

The question, "Shall a permanent organization be formed?" was referred, after discussion, to a committee which recommended in the affirmative. The convention then resolved itself into a provisional Association of American Medical Colleges, with a committee appointed to draft a Constitution, By-Laws, and Articles of Confederation.

The fifth question was: "Shall the customary diploma fee be abolished?" The answer was, "No."

As you will note, a great deal of the discussion had to do with pecuniary considerations, and these discussions were led by the representatives of the leading medical schools of the country at that time. It does not necessarily follow that these were practices which prevailed in those schools, but they must have been practices which prevailed rather widely to have been the main topics of interest and discussion.

A rather remarkable question came next: "Is it advisable to adopt a graded course of study?" A natural implication of the question is that there was not a graded course of study. It was voted that a knowledge of the elementary branches of medicine should precede a study of the practical branches, and it was recommended to all medical colleges to offer the option of three courses of lectures, an examination to be given students after the completion of two full courses of lectures on anatomy, chemistry, materia medica and physiology. The first course might be taken in a doctor's office under the apprentice system of study; the second course in a

medical school. At the end of what was termed the two courses of study, the student might be examined in the so-called elementary branches, and then, if he passed the examinations successfully, he might devote himself to hearing lectures on the theory and practice of surgery, medicine, obstetrics, diseases of women and diseases of children. A second examination was to be given for the degree, his standing, however, to be determined by the results of both examinations. Please understand, this was not the practice. It was proposed as an advance in the practice prevalent at that time.

After a two days session, which had been held in advance of the meeting of the American Medical Association, the meeting was adjourned to meet again in Chicago at the Palmer House, June 2, 1877.

With several delegates in attendance who were not present at the previous convention, the chief item of business at the Chicago meeting was the consideration of the draft of the Constitution, By-Laws, and Articles of Confederation. The draft of the foregoing was almost entirely the work of Edward Curtis of the College of Physicians and Surgeons of New York. As adopted, the Constitution stated as the objects of the Association: "The advancement of medical education in the United States, and the establishment of a common policy among medical colleges in the more important matters of college management."

The Articles of Confederation, to which all members subscribed and to which they agreed to conform, contained the following regulations of special interest: Provision for a regular session of not less than twenty weeks, and the requirement that the applicant for a degree must have studied for at least three years under a regular graduate. This perpetuated the apprentice system by which credit was given for "reading medicine" in a doctor's office for a year, although it did stipulate that the reading must have been done in the office of a regular graduate in order to receive recognition.

The subjects to be taught in the medical course were specified for the first time, and in the specifications pathology is first mentioned. I suspect that this inclusion was due to the influence of Samuel D. Gross. It would appear to me from what I have gleaned from various sources that Samuel D. Gross was probably the potential factor in the organization of the American Medical Colleges. He had occupied chairs in Cincinnati, in Louisville, and in New York City, before he returned to his alma mater, the Jefferson Medical College of Philadelphia, from which institution he had graduated in 1826 as a member of its first class. My assumption is supported by the fact that a number of those active in the organization were former associates and colleagues of his and served on the important committees. The addition of pathology to the curriculum I ascribe to his

influence because it was he who prepared the first systematic treatise on pathology published in the United States.

All colleges in membership were, according to the Articles of Confederation, required to submit a detailed annual report regarding their registration, courses of study, and other matters relating to the observance of the regulations therein contained.

A still further provision was that the honorary degree of doctor of medicine might be granted once yearly but only to a distinguished physician or scientific man more than 40 years of age, provided the diploma bore prominently on its face the word "Honorary." There were also other minute regulations regarding the payment of fees; permission was given to reduce fees in not exceeding 5 per cent of the number of matriculants. Last of all, the Articles of Confederation required that an applicant must have paid in full all college dues, including the graduation fee, in order to qualify for the degree.

The Constitution, By-Laws and Articles of Confederation were adopted. The provisional association adjourned sine die, and the Association of American Medical Colleges proceeded to its organization by the signing of the Constitution by those to become members.

I should like to interpose here an observation regarding the presidential inaugural parade in Washington in which the great State of Delaware, small in size but large in courage, takes first place in the procession because it was the first State to adopt the Constitution of the United States. If it is at any time contemplated that this Association shall have a parade, I claim the right to lead the procession because the Jefferson Medical College was the first college to sign the Constitution of this Association.

The officers elected in 1877 were: J. B. Biddle, of Philadelphia, who had presided over the preliminary convention; N. S. Davis, of Chicago; and Leartus Connor, of Detroit.

The meeting held in Chicago was the first regular meeting of the Association, since the gathering in Philadelphia was a preliminary convention only.

The second annual meeting was held in the Library Room of the Buffalo Medical College, Buffalo, New York, June 3, 1878. A few items from the proceedings of that meeting are of particular interest.

The Wooster Medical College, then located at Cleveland, reported that it had conferred an honorary degree of doctor of medicine on a person only 28 years of age, and gave as its explanation for failure to observe the specific provision of the Articles of Confederation that its officers had entirely forgotten the provision. They were exonerated under the circumstances. Pecuniary matters coming up again, there followed a proposal

to amend the Articles of Confederation to permit the reduction of fees to 10 per cent of matriculants instead of 5 per cent; but the proposed amendment was lost.

One of the first evidences of cooperation between a state medical society and the Association of American Medical Colleges is to be found in a communication from the Medical Society of the State of Pennsylvania, dated June, 1878. It is signed by the Society's permanent secretary, William B. Atkinson, who was also the permanent secretary of the American Medical Association. The Society passed resolutions binding all of its constituent county societies to appoint a board of medical examiners whose duty was to examine all applicants for acceptance as students of medicine under the tuition of members of the county society. This meant that a student who desired to read medicine under a physician, under the preceptorial system, must first be examined by a group appointed by a county medical society and, if he was of good moral character, had a good English education, and had a sufficient knowledge of Greek and Latin to enable him to pursue his studies to advantage, he would be given a certificate. No member of the society, on penalty of expulsion, might receive any student who had not thus been examined, and who had not received such a certificate.

In addition, the Medical Society of the State of Pennsylvania required the student to enter into a contract to pursue his studies for a period of not less than three years. It is stated as the duty of the preceptor to recommend to his student attendance at only such medical colleges as rigidly enforced the full three year course.

At this meeting, Dr. Samuel D. Gross presented resolutions urging a uniform system of instruction.

It was also voted at the Buffalo meeting to deny recognition to the Nashville Medical College because of acceptance of three years in practice and offering two graduating courses in one year, as satisfying the requirements for a degree.

Atlanta, Georgia, was the scene of the third annual meeting of the Association, May 3, 1879. Dr. J. B. Biddle, who had presided over the three previous meetings, had passed on during the year, and the Association was called to order by Dr. N. S. Davis, of Chicago. At that meeting there was reported a total membership of twenty-eight colleges, one affiliate, and four pending applications.

St. Joseph's College withdrew its application at this time because of the admitted practice of granting one year of credit for four years in practice. Dartmouth Medical College resigned because of alleged inability to

lengthen its course to twenty weeks, as required by the Articles of Confederation, to become effective in 1880.

A resolution was passed forbidding a majority of the faculty of one college from holding chairs in two or more separate schools. Another resolution forbade medical schools to publish in lay publications advertisements giving the list of their faculties and their chairs and restricted them rigidly to announcements in medical publications.

Discussion then centered about the adoption of a requirement for an examination to be given to applicants to medical schools "embracing, at least, the elements of the physical sciences in addition to a fair English education." This would indicate that there were no preliminary requirements in force at that time, except such as might, in the judgment of the dean, be desirable. Most of the applicants, I take it, could read and write. There was proposed an amendment to the Articles of Confederation to exact three instead of two regular courses in three separate years.

The report of the treasurer presented at the Atlanta meeting states that twenty-two colleges had paid the annual assessment of \$5 each, making a total income of \$110. The expenditures for the year were:

Prof. E. Curtis, for printing, etc.....	\$35.35
Stationery	4.25
700 copies Constitution, By-Laws, etc.....	50.00
Blank books	3.65
Printing circulars	4.00
Postage and wrappers	17.10

The total expenses for the year were \$114.35; the income was \$110; so they went in the hole \$4.35!

Officers selected were, Samuel D. Gross, president; N. S. Davis, vice-president, and Leartus Connor, secretary. The meeting adjourned to meet in New York City, May 31, 1880.

I have endeavored to give you some of the high lights of medical education and medical practice fifty years ago. It would seem, if we compare our situation today with conditions as they were just before 1880, we have gone far in many ways. The serious topics of discussion of that day are amusing today, but, now, as then, we are told that medical education is in an unsatisfactory condition, and, of course, the statement is true. We are on the eve of a new appraisalment, perhaps another revision of our standards. This is progress.

I wonder how many of the members of this organization are familiar with the work now carried on by the Association. With permanent headquarters in Chicago, a competent staff, and adequate files, the Association today is prepared to offer invaluable help to every member college. Having

referred to the financial report of 1878, with its receipt of \$110 and expenditures of \$114, we may refer to our present budget of approximately \$25,000, expended by this Association in the promotion of its objects and for the benefit of its members.

The Association of American Medical Colleges is the only association today concerning itself with medical pedagogy. The systematic study of student accomplishment, instituted in 1928, has placed in our records reports of students' grades in the liberal arts colleges and compared them with their accomplishments in the medical schools, indicating in large numbers something as to the adequacy of the courses offered in the various colleges in which students are being prepared for medical study. This information is summarized and sent to the schools represented, in an endeavor to interest them to better prepare prospective medical students in the preliminary courses.

Every applicant for admission to a medical school in the Association is reported, making it possible to have in one place information concerning multiple applications, in addition to the action taken by each school on individual applicants. It is possible for any member of the Association to submit a list of students accepted for its freshman class and learn what other applications those students filed, and what disposition was made of them by other colleges in the Association.

The JOURNAL of the Association is the only publication in the world dealing with matters of specific interest to medical schools. It is published at a cost of about \$15 per year to each medical school, and each school is entitled to twenty-five copies for distribution among members of its teaching corps.

A record is kept regarding students' activities, their college records, accomplishment in the medical course, internship appointments, and subsequent activities; and the accumulated information is put into a permanent register kept by the Association.

An activity which has done a great deal to set up the Association in the esteem of foreign medical schools and foreign bodies of licensure has been the study of applicants' admission to foreign medical schools, and of the submission of their applications for licensure to practice in the United States, to the executive officer of the Association of American Medical Colleges.

We may have some pride, at least, in the accomplishments in the period of time which has elapsed since the organization of this Association. But we may pause only for an instant; for one moment of satisfaction; and then we look forward. We realize that each year marks only a milestone along the line of progress. The end of the road lies ever beyond.

History of Medical Education at Vanderbilt University School of Medicine*

JAMES H. KIRKLAND

Chancellor of Vanderbilt University
Nashville, Tennessee

Lest words fail me after the very cordial reception you gave me as I rose, let my first sentence be one of great satisfaction at having this Association meet in Nashville and under the auspices of Vanderbilt University. I speak for, perhaps, a larger group than Dean Leathers. I am sure he has already conveyed to you his welcome and the welcome from our medical school. I speak for the whole University, as well as the medical group, and I say it gives us great pleasure to have you in our midst.

Now, that I seem to have gotten my second wind, so to speak, and have gotten through with the first obligatory expression that I felt bound to make, may I say further that I do feel a little embarrassed in speaking to such an audience as this. I claim no right to sit here through scientific attainments of any kind. I do claim, however, very close affiliation with all of you who may be engaged in administrative work and in the details of medical education.

I remember, many years ago, in the city of London, I gained access to the British courts which I was anxious to see. I was stopped at the door by an attendant in very impressive livery who said to me as I was about to enter, "Are you a lawyer?"

I said, "I am a member of the law faculty of Vanderbilt University in the State of Tennessee."

He said, "Pass right in," and he marched in with me and gave me a very prominent and delightful seat.

So I am here by the magic of the same expression, by that token: I am a member of the medical faculty of Vanderbilt University, and have been so longer than anyone else now connected with that faculty.

I have shared the humiliation of the early days of which your President spoke tonight. I have fought through a long period of effort to elevate the standards of medical education. I have seen the revenues run low in our coffers, and with other members of our staff I have faced death and dissolution on more than one occasion. And through all of that we have survived.

I shall tonight, therefore, confine my remarks to a few observations and experiences that grow out of those long years of service, and I think, possibly, as I tell our story, some of you will in memory go back over your

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own experiences and see in what we have done and suffered a counterpart of your sufferings and of your achievements.

Vanderbilt University opened its doors to college students in September or October, 1875, but at that time there was already in the city of Nashville a full-fledged medical school operating under the charter of the University of Nashville. Allusion has been made in your President's address to that institution.

That medical school was, of course, a commercial institution owned and controlled by the faculty. Each professor owned his own chair and received from it his proportionate part of fees which were, however, never great enough to cause any embarrassment of riches among the medical faculty. But the chief thing that was valued was the "reflex benefit," as it was generally spoken of.

That medical faculty, when Vanderbilt University was established here, a new and promising institution, thought it highly appropriate that they should approach the trustees of Vanderbilt University and offer to ally themselves with the new institution. So in April, 1874, by the passing of a simple resolution, that medical school became the Medical Department of Vanderbilt University, without ceasing to be the Medical Department of the University of Nashville. In February, 1875, before the first building was completed on our west campus, there was graduated a class of sixty-one young doctors who received the diploma of Vanderbilt University. They were our first graduates. One or two of that class still survive. They have not taken their own medicine. They forgot what they learned and so have lived through these long years to come back to our reunions with great pride and bear aloft a banner with 1875 on it, before there was any class of 1875 in the college department.

That school was just about what has been described here tonight. The course was of twenty weeks, and each student had to take that course twice and pay two sets of fees before he could be graduated. He then was voted on by his faculty and given his diploma, if a proper majority voted for it.

Nothing in the world was said about requirements for admission. They were not mentioned in any of the negotiations with the incoming student, but he was required to have been inside some doctor's office and have his name written there on a piece of paper that constituted him a disciple, an apprentice, of that physician, and this gave him credit for one of the three years he was supposed to spend in preparation for the practice of medicine.

Let me say, though, that that medical faculty was composed of the most eminent physicians at work in the city of Nashville or in this part of the country. On that faculty you will find the name of Dr. Paul F. Eve, who had a reputation far beyond the state of Tennessee, or even the South,

and who deserved it. And hardly less prominent was the name of William T. Briggs, which has been read here tonight, and others of similar caliber.

Let me say, also, that out of that environment there sometimes emerged a doctor of great ability, some young man of education, of ambition, who after his course here went to Philadelphia, to New York, to Boston, or across the water and came back with all the training that could be given at that time in the best medical centers of Europe.

There is only one indication of a desire to change the work that I recall in that first period of our medical school. About the year 1891 the catalog indicates that they had established a laboratory of histology and pathology, but there is added quickly in parenthesis, that to take this work the student must pay a fee of \$10, and it is optional with the student whether he takes it or not.

My connection with the school of medicine dates from 1893 when I was made Chancellor. I well remember appearing before the class that entered that year and making an address of welcome. The Chancellor of the University of Nashville was also present, and we looked into the faces of those young men before us and tried to say a few kind words to them. I still remember today the feeling of despair I had in looking at them and figuring out how we would ever make physicians of that group before us. It seemed absolutely hopeless. For the most part it was, for I do not suppose that 10 per cent of the graduating class of that time ever made successful practitioners. After a year or two, they went into farming, merchandising or business in some remote country town. They disappeared, and I suppose we ought to thank God it was so.

Yet I remember one young man in the faculty then, a Vanderbilt man, the youngest man in it I suppose, who took me aside after that first half hour I spent there, and sat down and talked to me about medical education, what we ought to do, and what I ought to do. That man was Richard Douglas, whom we knew as "Dixie" Douglas, a man of high attainments as a physician and a surgeon, and who died, alas, too soon, when he was in his prime and when he was ready to enjoy some of the fruits of his labor.

The year 1893 begins the second period in our medical school, and two things at once happened and they conditioned all of our further development. In the first place, we cut loose from the University of Nashville, and the trustees established their own medical department under the control of the board of trustees as an integral part of Vanderbilt University. That resulted in a second medical school in the city, but it at least gave us one over which we had control.

The second important thing that happened was that the medical faculty persuaded the trustees, out of the endowment that belonged to the

other departments, to lend \$83,000 and put up a building in which our work could be carried on more adequately. Some of that loan was repaid, a very small amount, because as soon as the medical school received funds of its own that obligation was wiped out. Those two things were fundamental.

A third thing was of great importance. Dr. William L. Dudley, professor of chemistry in the college of arts and sciences, was made professor of chemistry in the medical school and dean of the department. Dr. Dudley, of course, was in thorough sympathy with every effort to advance the cause of medical education.

That second period lasted for twenty years, and step by step some things were done which I shall enumerate very briefly.

In the first place, in the catalog of 1894, for the first time, appeared a statement about requirements for admission, that they must be equal to a teacher's certificate of the second grade. Later, that was changed, and the requirements were made graduation from a high school, but many high schools in the South and in other parts of the country had only a three-year course. Finally, in that period, instead of graduation from a high school, it was stated that the entering student must have completed fourteen specified units of work, which we at that time always alluded to as Carnegie units. That was all that we could accomplish in the way of requirements in that period of twenty years. But, believe me, it meant work, all of that. We were going through the very same thing in our colleges.

I had a good deal to do with the founding and the history of the Southern College Association. That started in 1895, and then we had nothing like such requirements for admission to college as I have indicated—the fourteen Carnegie units—nothing like it. But we did try to have something, and yet in 1895 there were only half a dozen institutions of higher education in all the South that could sign our articles of agreement and promise to enforce any requirements.

In 1910, which is the year when Mr. Flexner published his epoch making work, the Southern Association had as members only twenty-one institutions, and of public high schools only three or four. The Nashville high school was a member, and the Norfolk, Virginia, high school was there, but most of the schools were private schools that were able to meet the requirement of a high school education to fit boys for college.

In that year, 1910, the Southern Association gave up one evening to the discussion of medical school admission requirements. Dr. Colwell was there. He was one of the speakers. He was secretary, as you know, of the Council on Medical Education of the American Medical Association,

and he had been working then for six or eight years in that same task. Dr. Colwell, speaking of what ought to be required, said we were aiming at two college years in the future, but that could not be required in all sections of the country at that time, and the answer to the proper requirement is that the same standard should be required as is required by each state university for admission to its college of liberal arts. "The medical schools should not," he said, "as is now sometimes the case, compete with the high schools for students from the intermediate grade. The present irregular and low standard of admission is one of the factors which is hindering the development of our high schools."

That was as late as 1910. The Southern Association, instead of having twenty-one colleges belonging to it, now has a membership of 160 or 170, and instead of two or three public high schools it has now enrolled a membership of more than 1,000. That has been the great movement in the South in high school education that has made possible and helped to make possible the progress in medical education.

Passing from requirements for admission, I will move more rapidly. The course of study was lengthened from five to six months, and then to eight months, and then to nine months, making it the same length as the term in the literary department. It was also changed from two years to three years, and then to four years, so that instead of two years of twenty weeks each at the beginning of that period, at the end it was four years of nearly forty weeks each.

Furthermore, the old practice of giving didactic lectures was abandoned. A graded course of four years was introduced, with examinations and textbooks, and the student received his right to claim a diploma from a report sent in from the registrar's office and not through any balloting in the so-called green room.

Furthermore, scientific work was introduced. We had then, for the first time, a professor of chemistry, and we brought to the institution a professor of pathology. We had the other scientific laboratories equipped very meagerly, and younger men in the profession of medicine filled them. But we had three or four of those laboratories, in histology, in chemistry, in surgery, and the students were required to take the work prescribed in them.

Within that period, too, Vanderbilt came into possession of what is known as the south campus. That was the campus that was used by the old University of Nashville, and then by the Peabody Normal College. That institution inherited a considerable sum of money from the national Peabody Board, the state of Tennessee, and the city of Nashville, and acquired new grounds and put up new buildings in close proximity to

Vanderbilt University on the west campus. We bought the old south campus as a home for our medical school and our dental school, and that purchase enabled us to convert the original medical building into a university hospital. We had then the facilities of the City Hospital, and we were also trying to build up a hospital of our own.

Mr. Flexner's report was published in 1910. He visited Nashville in 1909. In that report he commented unfavorably on all the medical schools here. There were three of them then. The University of Tennessee, the University of Nashville, and Vanderbilt each had one. He said the obligation to carry on medical education in this center plainly devolved on Vanderbilt University, and there was no excuse for the existence of the other schools in this territory.

In that second period let me emphasize one thing. We began our struggle for higher medical education before there was any Council on Medical Education of the American Medical Association. We were not driven into that effort. We took it up voluntarily. I will not deny that our efforts were accelerated very greatly when the Council began operation.

You probably know of the preacher who, quoting a biblical text, said, "The wicked flee when no man pursueth, but they make a darned sight better time when you are right after them."

We were working on that proposition, and I want to pay my tribute to the medical faculty with which I labored so intimately during those twenty years. I was with them day and night and sat with them in all their meetings and committee meetings. All that the school earned was put back into the school to pay for scientific instruction given by younger men, to pay for laboratory equipment, and to help build up a hospital. I suppose there was not a single Vanderbilt professor in the medical school in those twenty years who ever drew a salary of \$200 a year. Most of the time they drew nothing, yet all those years working faithfully, enthusiastically and intelligently. A few of those who worked with us then still linger with us now, I am very happy to say.

The third period began in 1913. At that time there was distinct pressure from the Council and from this Association in three directions. One was in the way of scientific work, of better laboratories and better equipment. Another was in requirements for admission, for already it had been announced that we had to require two years of college work for admission to the medical school. The third was adequate hospital facilities.

We felt, first of all, the need for better laboratory equipment, a laboratory building. At that time a great benefactor came to our help in the person of Dr. Henry S. Pritchett, who enlisted the sympathy and interest of Andrew Carnegie in our work and persuaded him to give us \$1,000,000,

of which \$200,000 was to be used for a building and \$800,000 for endowment. The correspondence between Dr. Pritchett and myself will make interesting reading some day, for anyone who undertakes to write a detailed history of Vanderbilt University. Dr. Pritchett had access to Mr. Carnegie and was endeavoring to persuade him to adopt one suggestion and another that I was making that might help us and smooth the way here. Mr. Carnegie received him patiently for a while, until finally he lost his patience and said, "Now, Henry, don't you come back to me any more. This is the last change I am going to make in that letter I am sending to Nashville, and they can take it or leave it."

Well, we did not leave it, of course. So, in May, 1913, announcement was made in the papers in Nashville of a donation of \$1,000,000, and we felt very happy. We began with that our third period of history.

We thought to erect at once a laboratory building. We felt we were safe for a while. At the same time there was begun a great movement in the city of Nashville to build a hospital, a private hospital to be known as the Galloway Memorial Hospital, and that was to be located on the south campus. We set aside a piece of land for it, and \$250,000 was raised or borrowed and put into that building. This was never completed and still stands unfinished on that south campus, a monument to good intentions but, perhaps, misdirected energies. The building was turned over to us finally for a debt. We paid the debts on it, and it still remains on our hands and it is impossible in any way for us to make use of it. At one time we had great expectations that through that hospital we would secure the hospital facilities the Council on Medical Education was demanding of us.

Then, again, admission requirements had to be raised. In 1915, we went to one year of college work, two years later to two years. In 1918, five years after the announcement of Mr. Carnegie's gift, disaster was again staring us in the face. With increased requirements for admission our attendance dropped from nearly 400 students to 120, and the question was, what next? It looked like it meant closing the medical school.

At that time two other friends came into the picture, Mr. Abraham Flexner and his sometime chief and friend, Dr. Wallace Buttrick, officers of the General Education Board. Again and again, these gentlemen visited Nashville. I remember walking with them more than once over the old south campus, sitting on piles of lumber and stone, talking with them about a proposed laboratory building and about the Galloway Hospital. The more we talked and the longer we talked, the bigger the problem seemed. It seemed finally one of which I was about to despair.

I recall one day, as we sat on a pile of rock, Mr. Flexner turned to

Dr. Buttrick and said, "Doctor, I have reached one conclusion in this matter, and that is if we put our hands to it at all, it must be done in a large and generous way." Dr. Buttrick assented to that.

The working out of that principle within the next year resulted in a vote of the General Education Board in 1919 to give us \$4,000,000 for our medical school. That was at that time the largest single donation for one enterprise ever voted by the General Education Board. It made history for them, and it made history for us.

Announcement of that gift was made Thanksgiving Day, 1919. The *Banner* brought out a special edition that afternoon, and I recall very well the enthusiasm with which the announcement was received by our students and faculty.

Two years later it was decided to move the medical school to the west campus, and that was made possible by an additional donation of \$3,000,000, half given by the General Education Board and half by the Carnegie Corporation. In 1923, we began building our new plant. In 1925, it was opened at the same time the University celebrated its fiftieth anniversary.

That brings us to the fourth period, about which I shall say nothing, except that we have surrounded ourselves with a faculty as enthusiastic for further medical progress and achievement as the old faculty was in overcoming the difficulties of their day.

We think of the past with pride, and we try to think of it with gratitude for the labors of men, many of whom have passed away. I have no feelings of criticism or unkindly comment on the failures or defects of those early days. I lived through them all for forty years, and the medical school of today, whatever its merits may be, is builded on the virtues and achievements and sacrifices of those earlier years. For that we ought to be thankful. And I am thankful, too, for those great men who came into our history, Dr. Pritchett, Abraham Flexner, and Wallace Buttrick, without whom all of our labors would have been in vain.

So, gentlemen, we welcome you here. We cherish no feelings of resentment against you or against the Council on Medical Education for the criticisms you may have made of our work in days past. We think of that with appreciation and with gratitude. Perhaps, without that, we should never have discovered our friends, and should never have been able to do the work that has been done. So we welcome you tonight, that you may see in this story which I have told you in simplest words some justification for your existence, some proof of your own achievements, and that you may receive from our lips an expression of gratitude for the great work this Association has done in advancing medical education in all of these United States.

Study of Accomplishment by the Freshman and Sophomore Students in Seventy-five Medical Schools

FRED C. ZAPFFE

Secretary, Association of American Medical Colleges,
Chicago, Illinois

This study includes the freshmen in seventy-five medical schools as reported by the schools. Yale, Chicago and Johns Hopkins University Medical Schools are omitted because the students in these schools are not rated or classified until they have completed the second or sophomore year.

For the year 1933-1934, 6,650 students were reported, the largest freshman class ever enrolled in the medical schools of the United States. It exceeds by nearly 200 the enrollment in the preceding year. But, these students came from fewer arts colleges than in 1934, namely, 580 colleges, as against 594 in 1932 and 612 in 1931. The number of nonapproved colleges whose students were accepted by medical schools has increased from year to year—111 in 1931; 129 in 1932, and 137 in 1933.

Despite the many aids used and greater care in the selection of students, the mortality at the end of the freshman year remains about the same. In 1930 it was 14.2 per cent; in 1931, 13.1 per cent; in 1932, 14.1 per cent; in 1933, 14.3 per cent. These percentages include all students who must repeat the year, those who failed, were dropped, advised to withdraw for failing or poor scholarship and those who withdrew because of illness, lack of finances or some other reason which was not stated or for reasons other than poor scholarship, illness or lack of finances. The entire group comprises only 3.8 per cent of the whole number, leaving 10.5 per cent of actual failures on the basis of poor scholarship. In 1932, the percentages were 4.1 withdrawals and 10 per cent actual failures.

There was a notable lessening of the numbers of students whose record was encumbered by conditions, failures, or both, and incompleting work for various reasons. In 1930, the percentage was 18.6; in 1931, 17.2; in 1932, 18.6 and in 1933 it was only 14.9.

Perhaps these figures reflect the fact that in 1933 fewer students came to medical school with the prescribed minimum of college work—2 years, but this group had the smallest percentage of encumbrances of all the groups on the basis of college preparation as will be shown later.

The extremely small number who withdrew for lack of finances is noteworthy and interesting, only 42 out of a total of 6,650. The economic conditions prevalent in 1933 would lead one to expect a larger number of withdrawals for this reason.

There was a notable increase in the number of students with a clear

record, 70.7 per cent in 1933 as against 67.2 per cent in 1932. There were more failures in 1933 than in 1932, but fewer incumbered records and more clear records. This may be indicative of greater success in the selection of good students with the same lack of success in eliminating the poor students. Is it possible to improve on this selection? If so, by what means?

A survey of the records of the 580 arts colleges represented by this student body shows that certain colleges have had a poor record in the accomplishment of their students year after year. Extreme care in accepting students from these colleges might be productive in effecting a lessening of the numbers of failures. Then, too, a greater degree of cooperation with the colleges by refusing to accept students who are not recommended for the study of medicine doubtless would reduce the numbers of failing students. A study of this aspect of the problem, now in progress, may throw light on the subject.

All the arts colleges whence these students came are receiving an individual report on their students. They have been asked to return these reports with a statement as to each student's standing in college as to scholarship and whether or not he would have been recommended for admission to a medical school if a request therefor had been received. Reports returned by the colleges show some interesting data on this point.

The data on accomplishment as correlated with the extent of preparation for medical study also disclose some interesting facts.

As stated previously, the number of students presenting the minimum of 60 hours of college is becoming less each year. In this year's study a single group represents all those students who presented from 60 to 89 hours of preparation, i.e., less than three years of college work. The percentage of this group was 20.4, but at least one-third of the group offered from 72 to 89 hours of credit. Some of them should, no doubt, have been included in the 3 to 4 years group. This was not done because there was no desire to depart from the reports furnished by the medical schools. The remaining five groups are free from this possible criticism.

In the case of the degree holding groups, attention should be called to the omission of the students from three medical schools—many of whom had degrees. All the students in Johns Hopkins hold degrees; the Yale students, with one or two exceptions, held degrees, and many of the Chicago students had degrees. In table 2, it is shown that 46.5 per cent had degrees, but another study made on the entrance credentials of the 1933 freshmen showed that 52.2 per cent had degrees on admission to medical school. The present study does not include those students who were on the six or seven year combined course, receiving a degree on the successful completion of the first year in medical school.

TABLE I
DATA ON ACCOMPLISHMENT OF 1933 FRESHMAN CLASS, IN
75 MEDICAL SCHOOLS IN THE UNITED STATES

Own university students.....1933—2556*										1932†—2493				
Students from other universities.....1933—4094**										1932†—3964				
6650										6457				
1933	Clear	Con.	F.	C. & F.	Inc.	Must Repeat	Failed	Dropped	Withdrawn					
									Scholarship	Finances	Illness	Reason Not Stated		
Own	1880	176	73	16	78	20	78	94	29	17	27	41		
Others	2729	404	140	17	70	40	155	199	73	25	56	83		
Total	4609	580	213	33	148	60	233	293	102	42	83	124		
%	70.7%													
										688—10.5%			249—3.8%	
1932	Clear	Con.	F.	C. & F.	Inc.	Must Repeat	Failed	Dropped	Withdrawn					
									Scholarship	Finances—Illness	Reason Not Stated			
Own	1803	223	78	27	91	19	83	80	17	51		21		
Others	2536	430	239	54	64	29	177	160	84	127		64		
Total	4339	653	317	81	155	48	260	240	101	178		85		
%	67.2%													
										649—10.0%			263—4.1%	

*No report received on 27.

**No report received on 103. Reports not made until end of sophomore year.

†Based on 78 schools.

DATA ON ARTS COLLEGES WHENCE MEDICAL STUDENTS CAME

1931-612 colleges	Approved 501-81.9%	Not approved 111-18.8%
1932-594 colleges	Approved 465-78.3%	Not approved 129-21.7%
1933-580 colleges	Approved 443-76.4%	Not approved 137-23.6%

TABLE 2
CORRELATION OF ENTRANCE CREDENTIALS WITH
ACCOMPLISHMENT IN 75 MEDICAL SCHOOLS*

Entrance Credentials	Clear			Encumbered			Repeat	Failed	Dropped	Withdrawn			Reason not Stated
	U	M	L	U	M	L				Scholar- ship	Illness	Finances	
2-3 Years 1323-20.4%	332	410	169	3	29	139	13	74	67	43	15	12	17
	911-68.8%			171-12.9%			197-14.9%			44-3.4%			
3-4 Years 1871-28.9%	512	535	259	18	75	217	17	68	65	39	28	16	22
	1306-69.8%			310-16.6%			189-10.1%			66-3.0%			
4 or More Years 261-4.0%	52	69	31	1	11	42	5	11	19	8	1		11
	152-58.2%			54-20.7%			43-16.5%			12-4.5%			
AB, 1639-25.3%	509	484	226	4	29	199	13	33	57	28	19	11	27
	1219-74.4%			232-14.1%			131-8.0%			57-3.4%			
B.S., 1309-20.2%	358	378	209	2	28	156	16	36	49	32	19	7	19
	945-72.2%			186-14.2%			133-10.2%			45-3.4%			
Other Degrees 65-1.0%	17	16	11			15			3		1		2
	44-67.7%			15-23.1%			3-4.6%			3-4.6%			
Totals 6468	1780	1892	905	28	172	768	64	222	260	150	83	46	98
	4571-71.0%			968-14.9%			696-10.7%			227-3.5%			

*Does not include students from Yale, Chicago, Johns Hopkins.

TABLE 3
DATA ON ACCOMPLISHMENT OF 1933 SOPHOMORE
CLASS IN 78 MEDICAL SCHOOLS

Total	Clear	Con.	F.	C. & F.	Inc.	Repeat	Failed	Dropped	Scholarship	Withdraw		
										Illness	Finances	Other Reasons
5586	4452	436	187	20	156	34	95	126	10	28	18	21
86.5% of 1932 Freshman Class	79.8%		799—14.3%				265—4.7%					67—1.2%

Table 2 presents graphically the reflection of amount and kind of college work on accomplishment in medical school. Minimal preparation does not permit of taking much more than the prescribed subjects—hence it is more scientific than cultural, and not a great deal of the former. Students who have taken more cultural than scientific courses, with careful selection of subjects, apparently have the best preparation for the study of medicine—if their accomplishment in medical school is a fair criterion for judgment. The findings are a good argument against minimal preparation and for more cultural training.

The largest percentage of clear records was made by the A. B. group, 74.4. The same group shows the lowest percentage of failures, 8.0. The minimal group shows the smallest percentage of encumbered records, 12.9, but, except for the 4 or more years group, in which there were no baccalaureates, it also shows the largest percentage of failures, 14.9, and, again, except for the 4 year plus group and the other degrees group the smallest percentage of clear records, 68.8.

It would seem that the 4 years plus group must have consisted, in the main, of students whose work in college was not satisfactory or of the "hit and miss" kind; in other words, their preparation was poor.

The A.B. group, which is the largest, has the best record in every way, hence it may be assumed to be the best type of preparation for the study of medicine.

The B.S. group ranks second.

The "other degrees" group contains many "Ph.Ds." They do not seem to do well in medical school. The lack of knowledge as to the subjects in which these men majored does not permit of making deductions as to possible factors or reasons for such poor accomplishment, but the small percentage of failures in this group, 4.6, might lead one to infer that the accomplishment of this group in the subsequent years of the medical course may be considerably better than it was in the first year. These men may orientate themselves later and show much improvement in scholastic standing, probably ranking high.

On the whole, then, one is tempted to say emphatically that the best preparation for the study of medicine is the pursuit of studies leading to the A.B. degree; more culture; less science.

Table 3 is interesting. It shows the accomplishment of the 1932 freshman class as sophomores in 1933-1934. Table 1 shows that 14.1 per cent of this class dropped out by the end of the year for scholastic and other reasons. An additional 5.9 per cent dropped out by the end of the sophomore year, a total of 23 per cent for both years.

Observations covering a period of more than thirty years have shown

67-1.2%

265-4.7%

799-14.3%

79.8%

1932 Freshman Class

that at least 25 per cent of every entering class fails to graduate. If the rate of mortality of the 1932 class continues in the same degree as it has thus far, it is probable that about 27 per cent, or even more, of the members of that class will not graduate! An economist would probably show that this mortality represents a loss of millions of dollars to students and schools, much wasted effort and time misspent.

The factors involved in a discussion of these data doubtless include selection of students, better methods or processes of instruction and a more rigid culling out of the unfit during the first year of the medical course. Many more students should be dissuaded from entering on medical study than has till now been done. Voluntary withdrawals are few. Only urgency or good judgment in realizing inability to carry on prompt students to withdraw. The withdrawals for poor or failing scholarship are, in the main, the result of suggestion or pressure by medical school authorities. They are seldom voluntary. Some of these students do come back and make good, but they are few in number.

It is hoped that eventually the data coming out of this study may have value in making an improvement in results possible.

Report of the Committee on Aptitude Tests for Medical Students*

F. A. Moss

Secretary of the Committee
Washington, D. C.

THE TEST OF DECEMBER 6, 1933

On December 6, 1933, a new form of the test (Form 6) was administered to those students expecting to apply for admission to medical schools in the fall of 1934. This form consisted of the following tests: (1) Comprehension and Retention; (2) Visual Memory; (3) Memory for Content; (4) Logical Reasoning; (5) Scientific Vocabulary, and (6) Understanding of Printed Material. As a result of studies made with the view to improving the test during the summer of 1933, a seventh test, Ability to Follow Directions, which had been included in the two previous forms was omitted from Form 6.

During the fiscal year 1933-1934, 9,976 students were tested in 636 colleges. The total scores made on Form 6 ranged from 19 to 273 (out of a possible 275). The median total score was 164, one-half of those taking the test falling above this and one-half below. The highest quarter made above 192; the lowest quarter, below 133.

On February 1, 1934, we forwarded to the admission officers of the medical schools a report of the test ratings of the students tested on December 6, 1933. Since that date supplementary reports have been sent covering additional tests.

INCREASE IN NUMBER OF STUDENTS TAKING THE TEST:

With the exception of one year (1931-1932) the number of students taking the test has increased steadily from year to year. The first year the tests were administered by the Association of American Medical Colleges (1931) 9,220 students were tested in 547 colleges. This year 9,976 were tested in 636 colleges. The prospects are that more than 10,000 will be tested next year, for several medical schools that have not required it in the past are planning to make it an absolute requirement. Table 1 shows the number of tests given each year since the work was started.

*Delivered at the Forty-fifth Annual Meeting of the Association of American Medical Colleges held in Nashville, Tennessee, Oct. 29-31, 1934.

There has been a corresponding increase in the percentage of students of the freshman classes having test scores. Sixty-seven per cent of the students admitted to the medical schools in the fall of 1931 had taken the

TABLE 1—SUMMARY OF NUMBER OF TESTS GIVEN

Form	Date	Number of Tests	Number of Schools
Form 1	1928-8	1,552	In Medical Schools
Form 2	1929-30	5,916	In Medical Schools
Form 3	Feb. 1931	9,220	547 Premedical Schools
Form 4	Dec. 1931	9,173	537 Premedical Schools
Form 5	Dec. 1932	9,398	546 Premedical Schools
Form 6	Dec. 1933	9,976	636 Premedical Schools

medical aptitude test; 71 per cent of the 1932 freshman class had been tested; and of the total number of students admitted last fall (1933) 76 per cent had taken some form of the test. It would appear that 80 per cent would be a safe estimate of this year's class. This increase has thus been steady.

PERCENTILE RANKING OF STUDENTS ADMITTED TO MEDICAL SCHOOL AS COMPARED WITH THE TOTAL NUMBER OF APPLICANTS

It may be of interest to compare the students admitted to medical school in 1933 with the entire group who took the aptitude test. The average of all those admitted was a 56th percentile score, which places the average student admitted six percentile points above the average of all those tested, the average percentile of all tested being 50. Table 2 gives a comparison of students admitted with the total group of applicants tested.

TABLE 2. COMPARISON OF THE GROSS SCORES OF STUDENTS ADMITTED (FALL 1933) WITH THOSE OF TOTAL GROUP OF APPLICANTS TESTED

	All Applicants	Admitted
Highest 10 per cent made score above.....	234	239
Highest quarter made score above	215	221
Median score was	186	193
Lowest quarter made score below	151	162
Lowest 10 per cent made score below	119	133

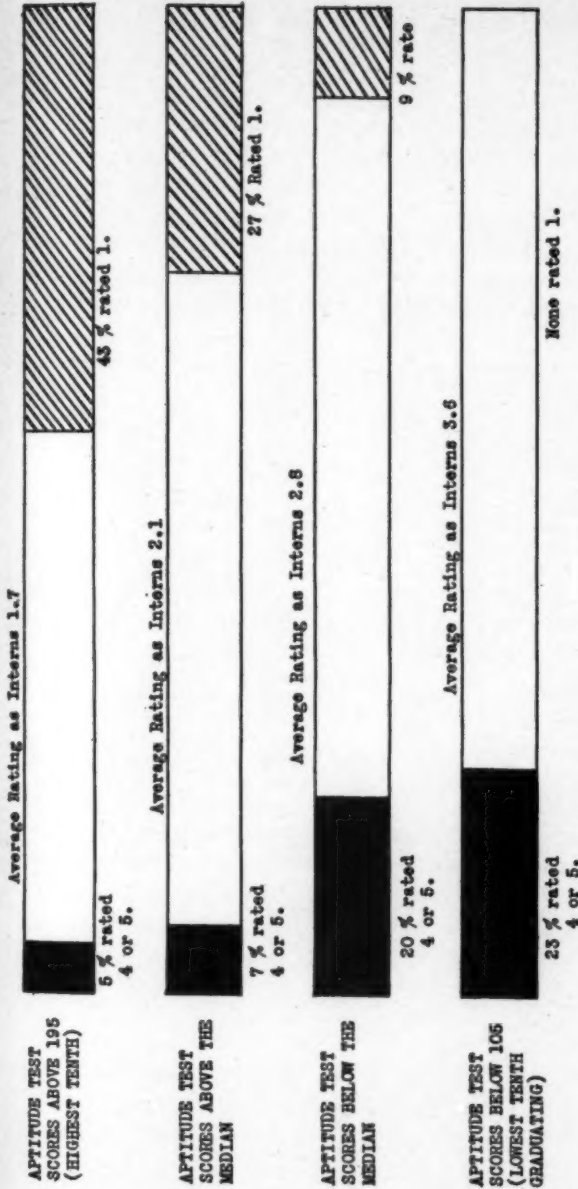
Table 3 shows the percentage of admission for the various test score groups tested in 1932. These figures make it clear that students making higher scores on the test are admitted to medical school in considerably larger numbers than those making low scores.

TABLE 3. PERCENTAGES OF ADMISSIONS FOR VARIOUS TEST SCORE GROUPS (1933)

Highest tenth of test scores.....	56%
Highest quarter of test scores.....	48%
Median half of test scores.....	43%
Lowest quarter of test scores.....	33%
Lowest tenth of test scores.....	25%

PERCENTAGE OF FAILURES AMONG STUDENTS HAVING TAKEN THE TEST AS COMPARED WITH PERCENTAGE OF FAILURES AMONG THOSE NOT HAVING TEST SCORES

In this study we took ten schools that admitted 1,008 students, our idea being that we would study approximately 1,000 cases. These schools



Interpretation of Ratings:

- 1- Comes up to the best intern hospital has had.
- 2- Is good, above average, but not equal to the best intern.
- 3- Is equal to the average intern hospital has had.
- 4- Is below the average intern, but better than the poorest hospital has had.
- 5- Is among the poorest interns hospital has had.

FIGURE 1. RELATIONSHIP BETWEEN APITUDE TEST SCORES AND RATINGS AS INTERNS (GR/DUATES, JUNE, 1933).

show a much larger percentage of failures than is found in the whole group of schools. In this group we wanted to get schools that admitted a large number of students who had not had the medical aptitude test. In these ten schools, 720 students had taken the test and 288 had not taken the test. The percentage of failures in the freshman year of those who had taken the test was 14; the percentage of failures among those who had not taken the test was 23. This demonstrates very clearly the point made by Dean Rowland in his discussion of last year's report, namely that there is a marked tendency for the poorer students to avoid taking the test. The student admitted without taking the test is almost twice as likely to fail as one who has taken the test. This study is outlined in Table 4.

TABLE 4. PERCENTAGES OF FAILURE IN FRESHMAN CLASSES
OF TEN MEDICAL SCHOOLS (1933-1934)

School	Students having Test Score	Students without Test Score
I	3%	19%
II	17%	21%
III	22%	31%
IV	22%	31%
V	16%	30%
VI	11%	23%
VII	0%	17%
VIII	8%	15%
IX	23%	29%
X	14%	13%
AVERAGE	13.6%	AVERAGE 23%

PREDICTIVE VALUE OF THE TEST

(1) *Graduates of June, 1933:* Last year we presented the results of a study of the internships of those graduates of June, 1932, who had taken the medical aptitude test. During the past month we have made a similar study of the graduates of June, 1933. The results of this study are shown in Figure 1.

These data were obtained through the cooperation of the superintendents of 200 hospitals (the 200 hospitals in which there were five or more students of this group). Rating sheets were furnished the superintendents on which they were asked to rate the interns on the following scale:

Rating 1—Comes up to the best intern hospital has had.

Rating 2—Is good, above average, but not equal to the best intern.

Rating 3—Is equal to the average intern hospital has had.

Rating 4—Is below the average intern, but better than the poorest hospital has had.

Rating 5—Is among the poorest interns hospital has had.

Dividing this group on the basis of their scores on the aptitude test it is found that of those having a test score above 195 (the highest tenth graduating), 43 per cent were rated 1, whereas only 5 per cent were rated 4

or 5. Of those interns with a test score below 105 (the lowest tenth graduating) none were rated 1 and 23 per cent were rated 4 or 5.

(2) *Various Classes:* The class which entered medical school in the fall of 1930, that is the year before the test was used as one of the criteria for selecting students, had 14.2 per cent failures in their freshman year.

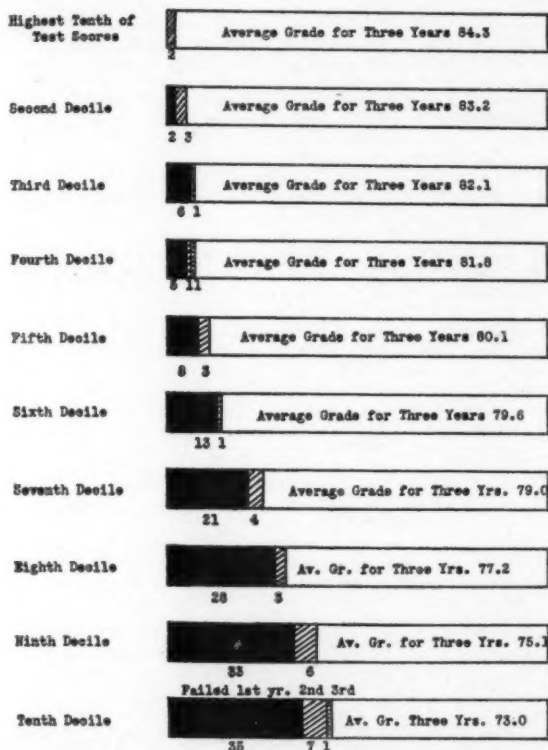


FIGURE 2. MEDICAL SCHOOL PERFORMANCE AT VARIOUS TEST SCORE LEVELS—JUNIORS, 1933-1934.

Since the test has been used as one of the criteria for the selection, there has been a steady decrease in the number of those failing and being dropped for poor scholarship, so that in the case of the students admitted in 1933, after the test had been used for two years, the failures had been reduced to slightly less than 12 per cent. Or to put it another way, without the

use of the test, assuming that the same per cent that failed in 1930 would have failed in 1933, we should have expected 14.2 per cent of the 6,595 admitted in 1933, or 936, to have failed. After the test had been used three years, we find the number of failures in this freshman class to have been reduced to 11.8 per cent of the 6,595 or 778, thus preventing 158 failures.

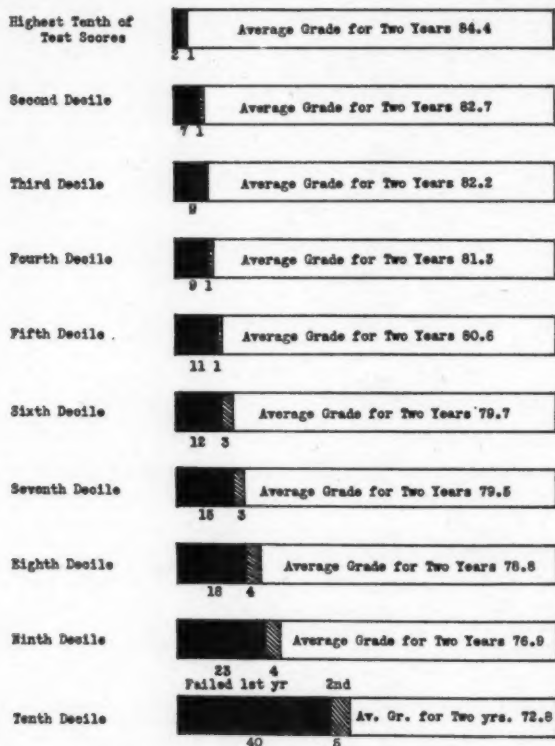


FIGURE 3. MEDICAL SCHOOL PERFORMANCE AT VARIOUS TEST SCORE LEVELS—SOPHOMORES, 1933-1934.

Figures 2, 3, and 4 present the medical school attainment of various tenths of test scores for students admitted in the falls of 1931, 1932, and 1933. The average grade in medical school in every case shows a gradual decline from the high tenth on test scores to the low tenth. In every in-

stance, too, the percentage of failures increases markedly as test scores decrease.

STUDY OF CASES OF DISCREPANCY BETWEEN TEST SCORES AND MEDICAL SCHOOL PERFORMANCE

It will be recalled that in last year's report we discussed several factors which appeared to play an important part in producing discrepancies. In

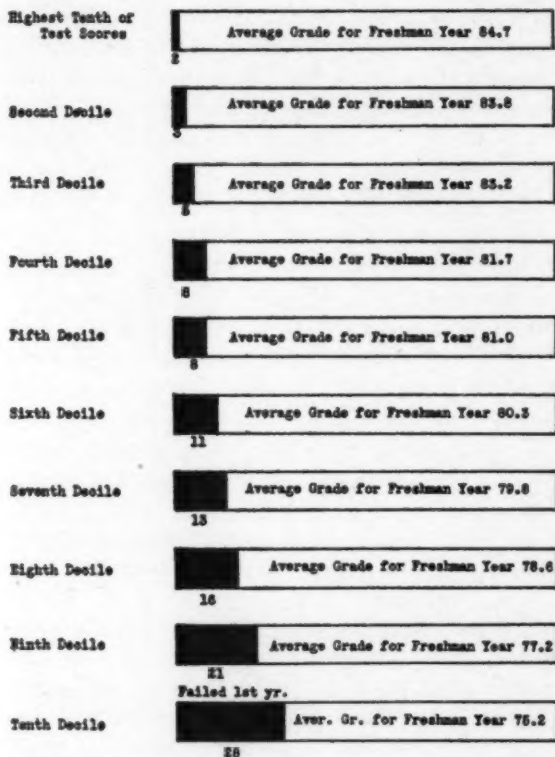


FIGURE 4. MEDICAL SCHOOL PERFORMANCE AT VARIOUS
TEST SCORE LEVELS—FRESHMEN, 1933-1934.

the case of those students with high test scores who do poor medical school work, we assumed that the test measured the student's ability with a fair degree of accuracy and tried to locate some factors other than ability which might have interfered with the success of the student in medical school.

From a very detailed study of discrepant cases in last year's freshman class several such factors were brought to light.

Among these factors are financial or family worries, lack of proper habits of study, an unfortunate personality, or in some instances the age of the student might play a part. In other instances, where a student failed to do as well in medical school as his high test score would have led one to expect, it was found that such students were unusually high on those parts of the test depending on premedical information and relatively weak on those parts depending more especially on native ability. In the case of the student low on the test who does satisfactory medical school work, the most probable explanations are lack of speed, and in the case of a foreign student, a language handicap. These factors serve to produce a test score too low to indicate the student's true ability.

We have also found that, in general, there is a lower relationship between test score and medical school performance in those schools in which the students are highly selected in ability.

This year we have found one other factor that plays a considerable part, and in some instances the main part, in producing discrepancy. Steps have already been taken to correct this, and we have reason to believe that it will be reduced greatly as a disturbing factor in the future.

In connection with the aptitude tests were given December 6, 1933, we ran into considerable cheating in one of the colleges. We found, unfortunately, that the man who gave the test was called out of the room for about an hour while the test was being given, and when the tests were corrected all the students made high scores. Nineteen students took the test in this school and all made scores ranging from 203 to 233.

The evidence that there had been cheating was so obvious that we took it up with the administrative officers of the school and they readily agreed for me to go there and repeat the test. The officials of the school were very cooperative and were very anxious to correct the situation. They explained the situation by saying that during the examination the man who gave the test was called out of the room for an hour or more while the students were taking the test. The students admitted that while the proctor was absent they proceeded to help each other as much as possible.

With the cooperation of the administrative officers of this school, I personally administered the same test to the students under standardized conditions. The standing of the students on the separate parts, their total scores, and percentiles are indicated in the following table:

TABLE 5. COMPARISON OF RECORDS MADE IN FIRST AND SECOND EXAMINATIONS*

	Separate Test Scores					Total Score	Per- centile
	1	2	3	4	5		
Student A	19	14	2	0	90	143	33
	37	25	17	20	100	218	91
Student B	7	10	2	12	55	97	7
	42	25	21	20	99	220	92
Student C	6	20	0	12	32	77	2
	44	23	15	20	95	213	89
Student D	2	19	0	20	71	118	16
	44	25	11	14	97	207	85
Student E	36	20	15	36	105	233	97
	40	25	13	36	103	232	96
Student F	1	12	0	2	44	62	1
	44	25	21	20	103	228	95
Student G	26	15	11	20	103	200	81
	37	23	17	20	104	229	95
Student H	4	4	7	20	65	110	12
	42	25	21	24	105	232	96
Student I	6	11	11	0	89	118	22
	42	25	21	20	105	226	94
Student J	40	25	17	24	96	215	90
	44	25	21	24	103	233	97
Student K	20	20	0	24	102	184	68
	44	25	21	20	105	234	97
Student L	20	23	0	12	62	127	21
	40	19	15	20	105	217	91
Student M	10	10	1	0	50	71	1
	42	25	15	20	105	223	93
Student N	22	13	11	16	102	177	62
	28	23	21	20	105	216	90
Student O	22	20	7	26	70	157	45
	36	25	15	20	94	203	82
Student P	6	11	9	12	55	98	7
	36	21	15	20	94	202	82
Student Q	12	20	5	20	84	157	44
	42	24	21	20	105	228	95
Student R	32	17	0	20	103	192	75
	42	23	17	20	103	221	93
Student S	25	12	21	20	76	160	47
	44	25	21	20	105	231	96

Thus, you will see that all of the students, except one, made very much lower scores when the test was repeated than they did when the test was given the first time, and this one student by repeating the test only raised his percentile one point. He was the highest student in the group, and according to the records of the school was the best student on his pre-medical work.

On checking the records of a previous year, we found considerable evidence that the test had not been administered properly that year, and on checking our records we found that students from this school constituted a large percentage of the discrepant cases studied last summer (1933). Following this lead, we requested the deans of the medical schools to which the students from this school had been admitted in the fall of 1934 to give them another test. This was done early in the spring. When the grades for these schools came in this summer, it was found that without a single exception there was a high correlation between the medical school record and the scores on the second test, whereas if the first

*In each case the first line of figures represents the student's rating on the test when it was administered under standard conditions. The second line shows his rating on the same test when administered on December 6.

test scores had been used the students would have been classed as discrepant cases. Of the twelve students from this college who were admitted to medical school in the fall of 1933, six failed, one made an average of 77, two made averages of 78, and three withdrew. Yet this same group had an average percentile rating of 89.

It is obvious to anyone that unless the tests are administered properly their predictive value will not be satisfactory. Our Committee has made a considerable study of this factor during the last two years. We consider it one of the most serious dangers with which we have to compete. We believe that it can be remedied by having paid proctors in the schools who will carefully supervise the administration of the test, and we are accordingly requesting funds from the Association to take care of the expense in connection with proctoring. A careful estimate shows that the test proceeds will furnish sufficient funds each year to cover all expenses including this proposed item for proctoring and will still leave a slight surplus. We are also trying to correct the condition by inserting certain cautions in our instructions to those who administer the test. We believe that the cheating is probably not widespread and I am convinced that it can be overcome if the proper steps are taken.

There would appear to be an increasing use made of the test by the medical schools from year to year. The results of questionnaires on the use of the test which were sent out during the summers of 1933 and 1934, respectively, are summarized in Table 6.

TABLE 6. USE OF THE APTITUDE TEST RESULTS BY THE MEDICAL SCHOOLS

	1933	1934
Require that all applicants except when specifically excused take the test.....	44%	47%
Make use of the results on those tested, but do not require the test of all applicants	42%	43%
Make use of the test results only in exceptional or doubtful cases.....	7%	5%
Do not make any use of the test results.....	7%	6%

BRIEF SUMMARY OF THE WORK ACTUALLY DONE IN CONNECTION WITH THE TEST

1. Preparation of the New Test: The annual construction of the scholastic aptitude test involves considerable labor. First of all, a decision is reached as to the general nature of the tests to be used, such as logical reasoning, vocabulary and understanding of printed material. This decision is based on a careful analysis and evaluation of the results from previous forms of the test. Before a new test is introduced it is tried out with a group of known ability to determine its validity and reliability. In making the tests for understanding of printed material, memory for content, and comprehension and retention, appropriate passages of proper difficulty are found, rewritten and cut where necessary, and finally questions are made on the passages. The diagram for the test of visual memory is selected from some standard medical work. It is drawn on a large

scale by an artist, and photographed. In making the vocabulary test, words frequently used in the premedical subjects are sought, and defined clearly and briefly. The list of words selected is checked with the vocabulary tests of all the past aptitude tests to avoid duplication, and arranged in lists, relatively homogeneous in subject matter yet not containing two items which might legitimately be confused. A larger number of questions than will ultimately be used in each test is made, so that weak, obscure, too difficult or too easy items may be eliminated.

When the first draft of the test has been assembled, it is tried on a group of known ability. After the papers are scored, each separate part of the aptitude test is gone over item by item and word by word by the summer staff. If a particular question has been missed by a large proportion of the group, the cause of the difficulty is sought, the question is reworded, changed in difficulty or eliminated altogether. Questions answered correctly by all the group are considered easy. In a series of conferences by the summer staff the test, as a whole, is put into its semi-final form. The resulting test is considerably shorter and better than the first version. Extra questions are still left in the test at this stage, so that more can be eliminated later by members of the Committee, thereby reducing the test to the desired number of items.

A tentative form of the test is then sent to each member of the Committee on Aptitude Tests for Medical Students, with a request for criticisms and suggestions. Each member of the Committee is asked to indicate which questions he would omit, and to suggest alterations or additions. After the corrections suggested by the test committee have been made, copies of the test are then sent to the members of the Executive Committee of the Association of American Medical Colleges for criticism and suggestions. Thus it is seen that every question in a new form of the test must not only be approved by the members of our summer staff of test specialists, but must also get the approval of all members of our Committee and of the Executive Committee of this Association.

2. *Arranging for the Giving of the Test.*—At the meeting of our Committee in Cleveland in August, 1934, a date was decided on for administering the new form of the test to the students who plan to enter medical school the next year. Arranging for the giving of the test on the date selected involves an enormous amount of correspondence with the various premedical schools. It has been our policy to establish contact with the premedical students through a member of the faculty, usually a science professor who represented the Committee in his school. Of the 1,000 premedical schools on our list, approximately 775 have representa-

tives who have administered the test for one or more years in that school. In October, form letters announcing the date of the test are sent to each of the 775 schools, and a self addressed postal card is enclosed on which he is asked to indicate the number of tests needed. On the same day bulletin board notices are mailed to these schools.

In the cases of the schools in which our Committee have no representative, letters are addressed to the president requesting that he designate a member of his staff to supervise this work. A self addressed form is enclosed for his convenience. As soon as we hear from these schools, we get in touch with the man designated by the president, sending him a letter similar to that addressed earlier in the month to our representative of previous years, and, as in the earlier letters, the form for indicating the number of tests is enclosed. As these cards are returned to us by our representatives, they are filed alphabetically by states.

As the time for mailing the tests grows near, it is necessary to send out several series of follow up letters to school from which we have not heard.

In addition to the form letters sent out by our office between October 15 and December 6, we receive numerous inquiries from the schools. For example, high school teachers out of school for several years wish to have arrangements made for them to take the test under the supervision of the high school principal. This necessitates contacting the principal and also a reply to the applicant. There are numerous cases of students who have taken the test the year before, but have not been admitted to medical school, who want to know if their chances of admission would be improved by taking the second test. In the case of a few schools, the date or hour designated by the Committee is unsatisfactory. In these instances tactful letters are effective in settling the difficulty without changing the time designated. Many schools, usually small ones, find that they have underestimated the number of students desiring to take the test. This requires changing the number on the card for that school and also in the case of those requests which arrive after the tests have been mailed, sending an extra package and an extra letter stating that the additional copies are being sent. In some instances schools are so late in ordering the tests that it is necessary to send the packages by air mail or special delivery in order that the test might be administered at the time set. In a few cases, where it is impossible to get the tests to the school by December 6, another form of the test is sent to be administered later in the month.

3. *Sending out the Tests.*—The actual counting of the tests, wrapping and addressing takes the full time of two clerks for five days. Both the

test folders and the preliminary sheets are counted by one clerk, and before being wrapped are checked by a second clerk who encloses a direction sheet, wraps and addresses the package. Those tests addressed to the schools in the far west are mailed on November 18, the middle western ones are sent on November 22, and the Atlantic coast ones on November 27. On the same day that the tests are mailed, a letter is mailed to our representative giving final directions for administering the test and returning the tests with the fees.

Six hundred and twenty-five packages were sent from our office between November 19 and December 6 of last year.

4. *Return of the Tests* (Counting, checking up on the fees).—The tests from the nearby schools begin to come in the day after the tests are given. For the next two weeks we receive from thirty to seventy-five packages a day. During this same time we may receive as many as one hundred letters daily.

In order to avoid the danger of any of the tests being in circulation among students, the proctors have been instructed to return all unused tests and also the preliminary study sheets along with the answered tests. As each returned package is opened in our office, the answered tests are counted and a notation made of the number. In order to make sure that no test blanks were retained, these, too, are counted and the number recorded. If the number returned is the same as the number sent, we have a perfect check. The fees are sometimes enclosed with the tests, but the majority of the schools send them separately. In either case a record of the amount received is kept on the card for each school.

5. *Accounting of all Moneys to the Association*.—Aside from the actual scoring and tabulating of the 10,000 tests, the most time consuming clerical work involved in the return of the test is the accounting of the fees to the Association. In our ledger are recorded the name and address of the school sending the fee, the date of receipt, the gross amount (number of tests administered), the deductions for transmittal charges, proctoring, etc., and the net amount received. For example:

	Gross	Expenses	Net
12/10/34 University of.....	\$87.00	.34	\$86.66
City, State			

This book is kept in our office throughout the year, and submitted to the treasurer of the Association for auditing at the end of the fiscal year. In addition to the record in our ledger, our Committee is supplied by the treasurer of the Association with serially numbered triplicate receipt forms. A receipt is forwarded to the remitter immediately on the receipt of the

fees. The duplicate is held pending its being forwarded to the treasurer, and the triplicate is retained in the Committee's files. The forms are used in consecutive order. If stamps are received, they are redeemed by means of the petty cash fund and the currency thus secured deposited in their stead. In cases where the gross amount due has been reduced in amount for expense in proctoring the test, return postage, etc., notation of such deduction is made on the receipt form as well as in the ledger.

At least once each week all accumulated receipts are deposited to the credit of the Association of American Medical Colleges in the First National Bank of Chicago. On the same day, the duplicate receipt forms together with a summary sheet showing the amount and date of the deposit and the lowest and highest receipt numbers included is forwarded to the treasurer, and a copy of this summary is sent to the secretary of the Association. For the first few days after the test is given, when we are receiving an average of \$1,500 a day, a deposit is made at the close of each day. During this rush period, the bookkeeping takes the full time of one clerk.

About January 10, the first follow up letters are sent to those schools which have returned the tests, but have not forwarded a check for the fees. The last of these delinquent cases was cleared up early in the year, and since that time this phase of our work has been limited to accounting for the fees for extra tests given at the request of the medical schools to applicants who for one reason or another failed to take the test at the prescribed time. In such instances the procedure outlined above is followed. To date more than 300 such tests have been given.

The disbursing of funds in payment of salaries and other expenses incurred by the Aptitude Test Committee is handled through the treasurer of the Association. On requisition blanks furnished by the treasurer are recorded the requisition number, the name of the person to whom payable, the kind of services rendered, the amount, and the item on the budget to which this is to be charged. Each requisition is signed by the secretary of the Aptitude Test Committee on the 20th of each month and forwarded to the Chairman of the Committee for his approval. He, in turn, forwards them to the treasurer.

6. *Scoring and Tabulating of the Tests.*—The scoring and tabulating of the tests are done during December and January in time for the reports to be mailed to the admission officers of the medical schools the first of February. The scoring, checking and addition of scores on the six separate tests on nearly 10,000 tests, each with 275 questions, necessitates employing a number of extra clerks during this period. As the tests for a school are completed, the names and scores of the students are typed on a

form sheet and a carbon copy made which is later sent to the proctor of that group. These typed sheets are verified to make sure that the names and scores of the students are typed correctly.

7. *Preparation of the Report.*—Tabulations are made of the scores of the 10,000 students on each of six separate tests and also of the total score. In other words, seven tabulations are made of each paper. From these tabulations the percentiles on the total scores and the deciles for each of the six separate tests are computed. The percentiles, which indicate where each student falls in relations to the whole group taking the test, are given in the report opposite each student's name. The deciles, however, are not recorded for each student, but may be determined by consulting the decile table which is placed in the introductory pages of the report sent to the admission officers of all medical schools.

Since many second year students have not completed their work in the premedical sciences at the time the test is given, a correction table is computed for raising the scores of such students so as to make them comparable with the group as a whole. A study was made of the tests of 1,000 second year students on the basis of which the correction table was devised.

After this statistical work has been done, the names, scores, and percentiles of the students (arranged according to premedical schools) are copied from the verified typewritten sheets onto stencils. For the last report 231 stencils were cut. The stencils are then verified by checking them with the typewritten sheets from which they have been copied. The stencils are then placed on the mimeographing machine and 100 copies made from each. Although the running of the stencils takes only a few days, the actual cutting of the stencils takes the full time of two typists for several weeks. The pages are then assembled, and each set is bound and wrapped and addressed. The reports are mailed on February first. At the same time a letter of transmittal is mailed to the dean of each medical school.

8. *Return of a Report to each Premedical School on their own Class.*—Having made the aptitude test scores available to the admission officers of the medical schools, we again turn our attention to the premedical schools. The first week in February a report of the ratings of their students is forwarded to each premedical school in which a student had taken the test. These are enclosed in a letter requesting that the scores be treated as confidential.

9. *Making a Card Index for the Applicants.*—In order that the medical aptitude test ratings of the applicants may be easily available when we begin our study of them as freshman medical students, an index is made containing a card for each student taking the test. On this card is typed

mately 15,000 names. We have tried consistently to reduce the work of the medical schools in connection with the test to a minimum.

On May 15, the grade sheets are mailed to the various deans, with the request that as soon as convenient the grades be filled in and the sheets returned to us.

The sending out of the intern rating sheets is a more tedious job. When the names and addresses of the hospitals in which their students of the previous year interned are returned to us, they are, of course, arranged by medical schools. It is necessary to transfer the names to rating sheets (one for each hospital). This is done by copying the necessary information for each intern on a small slip of paper and then arranging these by hospitals. This takes considerable time. When this is completed, a rating sheet is prepared for each hospital having five or more interns who have taken the medical aptitude test. The names of the interns are copied on this form. These are mailed to 200 hospitals on July 10. The statistical analysis done on these ratings have been presented earlier in this report.

11. Studies of the Predictive Value of the Test.—The study of the predictive value of the aptitude test requires the time of five people for over two months. Reports from seventy-six medical schools are studied.

Lists of the freshmen in each medical school have been sent in to the office in the spring, and the first step in the study of the test consists in taking from the file the card of each student in each medical school and classifying them according to the medical school entered. A record is made on the card of the total score on the aptitude test, and of the scores on the separate parts of the test. This information is obtained from the mimeographed report of scores.

After grades arrive from the medical school, the grades for each student are averaged, transmuted into a comparable grading system, with 75 as a passing grade in instances in which another system has been in use in the medical school. The average grade for each student is entered on his card. Deciles on aptitude test scores are calculated for each school separately, and the average medical school grades of the various tenths of the class tabulated. A permanent record sheet is prepared for each class giving the names of the students in the class, the aptitude test score of each, the decile in which each fell, and the average grade for the first year in medical school. Space is left for entering the averages for the succeeding years as they are completed. For each freshman class a correlation between aptitude test scores and average grades for the first year in medical school is computed. Cases of discrepancy between aptitude test scores and achievement in medical school are noted, and the names sent to the medical

school, with a request for an explanation of the discrepancy if the cause of it is known.

Later in the year, a special study is made of those cases in which there appears to be a discrepancy between the aptitude test score and the medical average.

Slightly less work is involved in studying the predictive value of the test in the sophomore and clinical years, as lists of students, deciles and test scores had been prepared in preceding years. For these classes it is necessary only to average the grades, transmute them into the desired system with 75 a passing grade, average this year's grade with those of preceding years, tabulate the two or three year medical school average according to deciles, compute correlations between aptitude test scores and averages, and studying discrepant cases.

12. Studies to Improve the Test.—In most of the studies of the predictive value of the test the students are grouped according to scores on the aptitude test, and their grades in medical school correlated. It seems desirable also to classify a group according to their achievement in medical school, and to see how the best and poorest students in medical school have done on the test. The highest and lowest quarters of last year's freshman and junior classes of six medical schools have been selected for study. The scores on the separate parts of the test for the high and low groups are tabulated. Study is also made of individual items of the tests of logical reasoning and scientific vocabulary—the only tests not dependent on a reading passage—to determine the predictive value of individual items, with a view to using similar items in future forms of the test. Studies are also made of the predictive value of the individual items in the separate tests, so that those having little predictive value could be discontinued, and similar items avoided in the future.

FINANCIAL REPORT

It happens that the test work was started by the Association during the first year of the depression, and in spite of the fact that we have gone through the most severe depression ever experienced in America, we have been able to keep the expenses not only down to the actual income of the Committee, but we have, in fact, shown every year a substantial surplus which went into the general funds of the Association. During the two experimental years, namely 1929-1930 and 1930-1931, no fees were collected from the students, and not only the secretary of the Committee, but several of his colleagues devoted their time without remuneration to take care of this work. The amount of money turned over to the Association during the present fiscal year will be approximately \$9,809.43. The

amount expended has been approximately \$7,913.11, leaving a balance of \$1,896.32. During the four years that the test has been in operation, we will have turned over to the general funds of the Association as surplus approximately \$7,400, or, roughly, 25 per cent of all money collected. During the first four years of the test work, not a cent was paid for the services of your Director of Study, and during the last two years he has received an honorarium of \$1,200 a year.

During the year 1932-1933, by taking advantage of the unusual depression, we got most of our scoring done at 40c an hour. During the last year of better economic conditions we were forced to pay 50c per hour. This is less than the C. W. A. paid for similar clerical work. We paid the 40c and 50c per hour not only to clerical workers, but to stenographers as well. In connection with the higher grade of statistical and technical work, we have been able to get excellent people, mostly university professors with Ph.D. degrees, during the summer for not more than \$200 a month. In fact, we have had two such people working this summer at the rate of \$200 or less.

FINAL SUMMARY

I have gone thus into detail about our activities so that you may see something of the work that is done and be more familiar with the way the finances have been handled. We have consistently tried to run the projects on the most economical basis,—and the fact that we have been able to show a profit of around 25 per cent to the Association in spite of the depression is a fair indication of how we have succeeded from the business standpoint.

PLANS FOR THE FUTURE

Our plans for the future include two general projects that will be of interest to the members of this Association. The first is designed to reduce very markedly the amount of additional clerical work that we have had to throw on the deans' offices of the various medical schools furnishing our Committee with the necessary data with which to make the studies, and the second general project will deal with further verification of the validity of the test, looking toward its general improvement.

(1) *Lightening Clerical Work in the Deans' Offices.*—It happens that there is considerable duplication in the data that are sent from the deans' offices to our Committee, to Dr. Zapffe, the secretary of this Association, and to the American Medical Association. It is believed that we can work out some system whereby all this duplication can be eliminated and yet all of us get the necessary data. Dr. Zapffe and I have already worked on this and have some definite plans. We have not yet talked to the representative of the American Medical Association, but

are hoping to do so in the near future. When our proposals are ready we shall probably send them to the various deans for criticism and comments. It is believed that this will reduce the work in the deans' offices approximately 50 per cent.

(2) *Suggestions for New Studies.*—It is hoped that beginning with next year an arrangement can be made whereby we can get records from the National Board of Medical Examiners on those students who have taken the National Board examinations and correlate their results with the results of the aptitude test. This year we secured from a few students who had taken the National Board their test results, and found what appeared to be a very significant correlation between them. Unfortunately, the number of cases is too small to be of very much value, and for that reason I have not reported the results, but hope to get 1,000 or more cases from the National Board so that we can make a detailed study.

DISCUSSION

DR. TORALD SOLLMANN (Western Reserve University): This test was first presented before this Association, when I was but rather skeptical, much interested, for if an hour's test had such high predictive value, it would be of great help in selecting applicants, but the correlation seemed so surprising that I thought it must be a coincidence. I wanted to try it myself, and we did try it and found that we came out just the same way, and so it seemed more than a coincidence.

When the Association then discussed taking up the test, and I was asked to act as chairman of the committee, I was glad to do so because I wanted to study it further from the inside. I have followed it very closely through these four years that it has been in official use, and I have been very much impressed with the continued coordination, with the fact that you could practically superimpose these statistics year after year, with exactly the same curve, showing that it was not coincidence, but a real usable correlation.

I feel convinced that the test has demonstrated its reliability for what it pretends to do, which is to predict the chance of a man seeking good in a medical school. It does not predict that this man will surely make good. It says this one has such-and-such a chance for making good, and that one has such-and-such a chance for doing badly, so far as scholastic ability is concerned. In that direction it has definitely demonstrated its reliability. I do not see how anyone can doubt it. Its value in that connection has evidently been recognized, for while it is not compulsory for the schools to use, practically all of the schools, 90 per cent or so, do use it. Its value is evidently recognized by the applicants, because ten thousand of them have paid their dollar and gone to the inconvenience of taking the test. Its value is evidently recognized by the premedical colleges, because some 640 give the test, and the number has increased year by year.

Therefore I feel very much convinced that the test is good, is useful, and is used. The use of the test is practically complete, but we naturally wish to make it even more useful and even better. Nothing of that sort is ever perfect, but one can work toward perfection.

In order to make it better we introduce and try out new features, as Dr. Moss has explained, and we leave out old features. In order to find out whether a new thing is worth while or an old thing is not worth while, we must test it out. A certain amount of experimentation is indispensable.

This year, for the first time, we have been able to test the correlation of the test with performance *after* graduation. We knew from our studies that this tested a man's chances of getting through the medical school, but we could not tell whether it tested his chances of practicing medicine. The only thing which could tell us that was the actual test. We can do this, to a considerable extent at least, by the internship, now that the first group that had gone through the test from the beginning year has arrived at the internship. I confess that I was somewhat surprised to see that the high correlation carried over into this, for when a hospital superintendent classifies an intern as good or poor, it is no longer entirely a matter of scholarship. Other things go into it, but, nevertheless, the aptitude test is still of predictive value.

In testing the reliability of the aptitude test it must be checked continuously against as many other sources of information as possible. For this reason, we desire also to check it against the grades in the premedical schools. Of course, we know there is a correlation between the grades in the premedical schools and the chance of a man getting through the medical school, and we know that there is a correlation between the aptitude test and the grades that students make in the medical schools, it follows that there must also be a correlation between the aptitude test and the premedical grades. But there are exceptions, and of these exceptions we would like to find the causes for so that they may be avoided as far as possible.

We are all interested, from the standpoint of admissions and also from the standpoint of planning medical and premedical training, in knowing whether this subject or that in the premedical course gives a better correlation. We have made some studies in this direction, but not enough to be decisive, and so we desire to gather more data.

Such medical schools as get most of their students from one college naturally find a very close correlation of the premedical grades and the medical grades, quite as good as with the aptitude test, and sometimes better. But the schools which take their students from several colleges find that a high grade from one college does not mean what a high grade from another college means, and, therefore, get a poorer correlation. We believe that when this occurs, we should find out whether our test was at fault or whether the college grading was too variable. In that case, perhaps, we could submit the data to the college and let them study it, and see whether it could help to get its grades more in line with others so that they would mean more to us as admitting officers.

There are a number of other interesting by-products which a study of this kind, if it is conducted properly, is bound to bring out.

There is one thing which we have always distinctly disclaimed doing, and have avoided doing, because we do not believe it is our function. We have never given out information to show how the different medical schools ranked in the level of their applicants from the standpoint of the aptitude test, because we felt that would be undertaking the ranking of the medical schools, which was not the business of the committee and had no relation to it. Similarly, we do not intend to give out any information that would rank the premedical colleges.

Again, that is not our business. It may be a valuable thing to do, but it is not for us to do.

What we do want to do, what we do feel is our function, is, first of all, to test the students with the best test we know how to give and, in the second place, to improve the test so that it will be better; then to study the results that may come from it and see what help they give in improving educational methods.

The Committee on Aptitude Test, which has lived with this test for four years, is unanimously of the opinion that these functions should be continued. Whether they are continued by the present committee or by some other committee is relatively immaterial, but so far as continuing the test is concerned the Committee believes it should be continued.

PROFESSOR W. C. MAC TAVISH (New York University): I have had occasion to study the records of the students who had taken the aptitude test twice. I was very much surprised to find that after the lapse of a year about half of them had made remarkable improvement in their aptitude test scores although the same students had not noticeably improved their scholarship. I tried to find the reason for this improvement, but have been unable to do so.

I believe that none of the students taking the test for the first time have any previous conception of what it is like as the sheets of the past tests are not available. Those who have taken the test once, however, usually have a very definite recollection of the type of question. One fourth year student who had previously taken the test during his third year told me that he reviewed the notes of the premedical science courses for a whole summer preceding his second attempt. His percentile rating rose from 40 in the first test to about 85 in the second.

Further, most students who take the test the second time are those who have been refused admission by the medical schools in the previous year. It seems to me that care should be exercised, in considering the aptitude test scores, to discover whether the student has repeated the test. I have noticed that several such students have been accepted on reapplication presumably because of a high test score.

In my opinion, the test is a very useful guide in selecting students from schools in which low academic standards prevail. I have had occasion to examine the premedical records of students from such colleges and commonly find no agreement between aptitude test mark and general scholastic standing. It would not be fair for the medical schools to refuse applicants from those poor schools as excellent students occasionally apply from them. I believe that the aptitude test, in conjunction with the scholastic record, would furnish a reliable basis for selection in such cases.

I was rather surprised to learn that the test had been administered without careful proctoring in one college. The test should be proctored carefully even in schools where honor systems are in vogue, because students in colleges throughout the country are taking it in competition for admission to the medical schools and all opportunity for dishonesty should be rigidly excluded.

In conclusion, I wish to say that the committee has always functioned most satisfactorily in providing the test papers promptly and in all other respects.

DR. S. I. KORNHAUSER (University of Louisville): I think one of the greatest values of this test is to bring to the attention of the deans of undergraduate schools whether a particular school is weak or not.

In our own state I think of one college in which, perhaps, the highest man in that college made a percentile score of 35, and when these facts were brought before the college, the college took them into consideration and bolstered up their premedical departments very considerably. So I think this Association has aided in the general education of the country in that way.

I was interested in following our students for the past five years. I notice many members of this body with A.O.A. keys. They would be interested in these results.

We arrange our incoming students according to their percentile standing in the aptitude test. Seventeen of those from our upper quarter have now won A.O.A. keys. Of those in the second quarter, according to the aptitude test, seven have won A.O.A. keys; in the third quarter, three; and in the fourth quarter, one so far. I think we are going to have one from the lowest quarter in June. So far, out of twenty-seven students elected to A.O.A. in the last three years, none have been from those who ranged from about 25 per cent down to perhaps 5 per cent in the aptitude test.

In five years we have lost fifty-one students (they either quit or have failed) out of 110 of those in our lowest quarter in the aptitude test. In our upper quarter, we have lost only ten students in those five years. So, we lost approximately two students each year out of the upper quarter, who either quit during the year or withdrew for some reason, whereas in the lowest quarter we lost almost half the group who quit or failed.

DR. F. A. MOSS (Committee on Aptitude Tests, Washington, D. C.): The point brought out by Dr. MacTavish is a very good one, and we have tried to take care of that in last year's report. You will notice a star at each man's name in our report if he has had the test in the past. We have put in the front of the report a table indicating how much should be deducted for the practice effect of having taken the test in the past. It is not a perfect table, but it does indicate there should be deductions made where the man has had the test before.

We have pointed out in every one of our previous reports that the test should be used only as an additional criterion. Where there is a high premedical grade and a low test score, or a high test score and a low premedical grade, you should be cautious of accepting the man. If both are high, you can easily admit him. If both are low, you should have little hesitancy in refusing admission. But where there is a discrepancy, caution is indicated.

Ideal Standards for the Teaching of Psychiatry in Class "A" Medical Schools*

FRANKLIN G. EBAUGH, M. D.

Director, Division of Psychiatric Education,
National Committee for Mental Hygiene
Denver, Colorado

1. **ORGANIZATION:** The department of psychiatry should operate as a major division of the general medical curriculum along with medicine, surgery, obstetrics, and pediatrics. (In the sixty-eight schools studied, there are at the present time thirty-five separate departments of psychiatry and thirty-two under the departments of medicine. In one school there was no department of psychiatry.)

2. **FACULTY:** The department of psychiatry should have a competent teaching staff and appointments should be based on thorough training, successful teaching experience, research ability, and willingness to pursue an academic career. Having the faculty serve as the staff in a hospital or ward organization is advisable in institutions where these facilities are available. The teaching personnel from school to school will vary with the local situations, administrative policies, and general teaching objectives. (Past studies indicate that there are on an average four instructors to each school. Eight schools have a teaching staff of only one man, and eight others a teaching staff of only two. Since 1931, thirty-one men have been added to the teaching field and it is anticipated that in the future there will be approximately fifteen entering this field each year.)

3. **CLINICAL FACILITIES:** The general facilities for the teaching of psychiatry should be similar to those in other branches. In many schools the university psychopathic hospital, psychiatric clinic, or institute offers an ideal arrangement. In other schools well-staffed and equipped psychopathic wards which furnish a good range of clinical material should prove adequate. The special hospital or ward should have a trained staff of psychiatric nurses, a social service department, and laboratory and out-patient departments. There should be facilities for occupational therapy, recreational therapy, hydrotherapy, and physical therapy, which will enable the student to have contact with these essentials in the modern hospital care of the mental patient. Each student should have an opportunity to make examinations of individual patients under an instructor who serves as guide or director. Such examinations will be supplementary to the required didactic class work, clinics, and demonstrations. Schools that do

*As approved by the Advisory Committee on Psychiatric Education of The National Committee for Mental Hygiene.

not have the above facilities during the transient organization period can present psychiatry through a properly trained teaching personnel by the utilization of cases from general-hospital wards and outpatient clinics, where there will be abundant material, especially for the study of the psychoneuroses and of the early stages of the major psychoses. (Previous studies show that there are fourteen psychopathic hospitals used for teaching in eighteen schools, twenty-five psychopathic wards for teaching in twenty-six schools, nineteen state hospitals available, and resident instruction given in seven of these. Three private hospitals are used for teaching, two veterans hospitals, and one federal penitentiary. Outpatient facilities are present and utilized for teaching in forty-seven schools. Eight additional schools have outpatient clinics which are not used for teaching. Twenty-nine child guidance clinics are available, with eight additional clinics that are not utilized for teaching.)

4. CURRICULUM IN PSYCHIATRY: Psychiatry is one of the fundamentals of the basic training of every physician and so is not to be taught as a specialty. It is recommended that psychiatry have a place in each of the four years of the medical-school curriculum. We do not wish to advise a fixed rigid curriculum, but desire to present a psychiatric curriculum based on general flexible principles. These flexible principles should center around the following preclinical instruction:

Psychobiology should give a student a knowledge of the normal functioning of a totally integrated individual as a person. It is advisable that each student conduct a personality study of himself on the same ground as one studies others. This means broadly that the preclinical foundation should rest on what has been termed a tripod of anatomy, physiology, and psychobiology. Likewise, it may be stated broadly that the preclinical instruction should present methods for study along with contacts with case material in applying these methods.

The general principles underlying clinical instruction are likewise flexible depending on the existing facilities and local situations peculiar to each medical center. In the main, the clinical instruction should include provisions for practical work to supplement the didactic and preclinical instruction, using available ward and outpatient facilities and in some centers interdepartmental consultation services. It is anticipated that the bulk of this work may fall in the third year and that the fourth year will be devoted to the complete examinations and formulation of a reasonable number of cases with a minimum of six.

In a schematic way there appear to be several types of psychiatric curricula. The first type consists of preclinical instruction in psychobiology during the first year, 16 hours; psychopathology and methods of study and

formulation, second year, 16 hours; clinical instruction, didactic work, clinics, clerkships, third year, 60 hours; outpatient work, interdepartmental consultation participation, examination of individual cases, fourth year, 60 hours.

The second type of curriculum is similar in which the local situation and general curriculum may not make it possible to teach psychobiology in the first year, leaving its instruction to the second year together with instruction in the examination of patients. The bulk of the clinical instruction may again fall in the third year with elective work in the fourth year.

A most inadequate curriculum may be mentioned as an example, in which there is continuation of the practice of not using the preclinical foundations and the teaching of psychiatry is confined entirely to the clinical years.

In meeting these essentials based on the above principles for an acceptable teaching of psychiatry in the future, one should think of standards and not of standardization. It is practically impossible to avoid a discussion of hours from an administrative viewpoint. The principles and objectives involved in the psychiatric curriculum, the trained personnel and the content of the instruction are the important things. To meet these essential requirements for the teaching of psychiatry, it seems reasonable that a period of from 3 to 4 per cent of the total curricular hours should be devoted to this field. This means in a total curriculum of 3,600 hours and 4,400 hours, that approximately 150 hours should be devoted to psychiatry.

With this type of curriculum, it may be anticipated

1. That students will show more interest and initiative in psychiatry presented as a part of general medicine;
2. That we will not have the present separation of the somatic and mental sciences, and that the student will accept the general dictum that he is dealing with a person and not a disease and will develop a broader social viewpoint and attitude toward medicine in general;
3. That there will be greater correlation in both preclinical and clinical teaching, and that psychiatry will no longer be taught as a specialty or presented, according to the unfortunate custom of the past, only during the senior year;
4. That the teaching of psychiatry as a fundamental phase of all medicine will play a role in the general dissemination of the preventive viewpoint.

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Entrance Requirements

Much has been said about the desirability of raising the entrance requirements of medical colleges from the present minimum of 60 hours, or two college years, to 90 hours, or three college years. Whether the proposal is worthy of support or not will not be argued at this time. It is agreed by all interested in the matter that two years of college work is an easily enforceable minimum. Furthermore, studies made of the credits submitted by matriculants in medical colleges since 1928 have shown that year after year the number of students offering the minimum had grown smaller. Of the 6,650 students reported on as having completed the freshman year 1933-1934, only 16 per cent offered the minimum. On the other hand, the number offering a degree, baccalaureate or doctorate, has steadily increased. Of the freshman year 1933, 52.2 per cent offered such credentials for admission. Evidently, then, students intending to go into medicine feel the need for more than the prescribed minimum or they are of the opinion that additional credits will prove helpful in securing acceptance of an application for admission. An analysis of the subjects taken in excess of the requirement might furnish the answer.

On the other hand, it is well known to these aspirants for enrollment that while many medical schools publish a two year requirement for admission, they select their students from among those who offer more than the minimum requirement. That is also true of medical colleges which publish a three year requirement but accept only students who hold a degree. A few colleges state frankly that

a degree is required but that less will be accepted. It is possible, then, in fact quite likely, that the urge for additional credits beyond the minimum arises from knowledge on the part of the student of these procedures.

The requirements of 77 medical colleges were studied. Thirty-one of these colleges were departments of state universities. It is known that for obvious reasons these colleges cannot increase or raise the published requirements, but can base a selection of students on merit alone, hence can in the selection go beyond the published two year requirement; In this group of 31 colleges, 15 publish a 2 year requirement; 8 publish a 3 year requirement; 4 ask for 90 hours; 4 ask for 65, 66, 70 and 72 hours, respectively.

Of the 46 non-state universities and unaffiliated medical colleges, 1 demands a degree; 21 demand 3 years; 20, 2 years and 4 demand 64, 64, 70 and 72 hours, respectively.

Totaling these data for the 77 medical colleges, it is found that 35 demand 2 years of college work; 33 ask for 3 years; 1 demands a degree based on four years of college work, and 8 ask for from 64 to 72 hours of college work. In the three year group are included the 4 colleges which demand 90 hours instead of 3 years.

It might be concluded, then, that it is best at this time not to make any attempt to increase the entrance requirements over the present minimum inasmuch as the matter is being adjudicated in what appears to be a wholly satisfactory manner by both applicants and medical colleges. This belief is strengthened by the findings of the study of applicants which

shows definitely that no discrimination is made against applicants offering the minimum. Proportionately as many of this group are accepted as are accepted of those presenting credits beyond two years of college work.

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Study of Student Accomplishment

By order of the Executive Council of the Association, the records of the freshman medical students as furnished by the medical schools are being sent to the arts colleges in which their preparatory work was done.

These colleges are being requested to return these reports with their statement as to the students' standing in class, by thirds, and whether or not they would have been recommended for acceptance by medical schools had such an action been requested.

The replies are coming in and, often, statements bearing on the problem of acceptance of students are made. It appears that in some instances the colleges have not been asked for an official transcript of a student by the medical school. And if such a student has failed in medical school, the college is chagrined. Again, it appears that in a rather large number of cases a student who is not recommended for acceptance by the college authorities is accepted by the medical college. And, again, if such a student fails, the college is not pleased with the result because they are charged with a failure which they tried to avert by not recommending the student for acceptance.

In a number of instances a college has been charged with a student who never was in attendance. This arises first, out of the fact that quite a number of colleges bear the same name but are situated in different states. Then, too, a student may have attended two or more

arts colleges in pursuit of his preparatory work. In order to avoid a false charge, it is desirable that medical schools when reporting such cases should give the name of the college to which he should be charged last on the report.

It is also desirable that the full name of the student be given, so that initials may be used to place him correctly, and his home address. Sometimes, students have identical names but do not have the same address. Therefore, the address will make it possible to have the data on each student correct.

In view of the fact that a students' scholastic register is now in process of preparation, it is most essential that every identifying datum be given. Many requests are being received from medical schools for a complete report on one or more students. The Register is being prepared to give this information. It is not now elsewhere obtainable. It should prove extremely useful in the case of repeaters as these students do not always state on their subsequent applications for admission to medical schools that they are repeaters, usually because of poor or failing scholarship. Each year several hundred repeaters are registered in our medical schools. Many of them are permitted to repeat after the faculty has given careful consideration to their cases. It is not intended that students should not be given an opportunity to repeat if their case is a worthy one, but when a repeater endeavors to gain admission to a medical school on the basis of a new applicant, the register will prove helpful to the admitting committee. Despite the fact that schools are asked to report repeaters, they do not always do so and if the data on file in the office of the Association disclose such repeaters, the question arises whether the college has had knowledge of that fact.

College News

Johns Hopkins University School of Medicine

The trustees of the Johns Hopkins University announce that the twenty-second course of lectures on the Herter Foundation will be given by Dr. John Charles Grant Ledingham, M.A., M.B., D. Sc., F.R.C.P., C.M.G., F.R.S., Director, Lister Institute, London. The lectures will be given in Hurd Memorial Hall of the Johns Hopkins Hospital, at 5:00 P. M.

Studies on Virus Problems: December 5: Lecture 1. Introductory. Tissue and Cell Affinities of Viruses and Reactions of the Host. December 6: Lecture 2. Cultivation Methods. The Development of Antibodies, in particular, the Antiviral Body. December 7: Lecture 3. The Elementary Bodies in Virus Infections and the Filterable Avian Tumors and their Etiological Significance. The Outlook for the Future.

Baylor University College of Medicine

The second conference of the pathologists of the South was held in the Nurses' Home November 12. About thirty-five attended the session.

November 17 Dr. Henry E. Meleney, associate professor of preventive medicine and public health, Vanderbilt University, School of Medicine, addressed the class in bacteriology on the importance of the intestinal parasites.

An exhibit illustrating original investigation done in the Department of Bacteriology, Hygiene and Preventive Medicine on "Relapsing Fever in Texas" by Drs. Kemp, Moursund and Mr. Wright received first award at the meeting of the Southern Medical Association, San Antonio, Texas, November 13-16.

Dr. Jacques Forestier, Aix-les-Bains, France, addressed the seniors and juniors

November 26 on "The Use of Lipiodol in the Diagnosis of Lung Conditions."

Dr. Gordon E. Davis, Bacteriologist of the U. S. Public Health Service, connected with the Rocky Mountain Laboratory at Hamilton, Montana, addressed the class in bacteriology, December 1 on "Tularemia and Rocky Mountain Spotted Fever."

Indiana University School of Medicine

Construction of the new therapeutic pool at the James Whitcomb Riley Hospital for Children, Indianapolis, has been made possible by funds furnished by the University and a loan from the Public Works Administration. The total cost was between \$40,000 and \$50,000. The pool will be utilized to treat crippled children by means of swimming exercises. Miss Winifred Conrick, director of occupational therapy at the hospital, is in charge of these treatments.

The walls and ceiling of the pool are decorated by designs portraying legends and fairy tales to attract the children's attention while they are receiving their treatments. These designs were drawn and conceived by students in the John Herron Art Institute in competition for prizes amounting to \$100.

University of Cincinnati College of Medicine

Hereafter there will be given to the freshman class five lectures: (1) Relation of anatomy to surgery; (2) relation of physiology to clinical medicine; (3) relation of biochemistry to clinical medicine; (4) application of fundamental sciences to internal medicine; (5) application of fundamental sciences to pediatrics.

In the junior year particular attention will be paid to correlation courses in the

outpatient department. Medicine and surgery will have conjoined clinics dealing with moot points, for instance, diseases of the upper right abdominal quadrant. Diabetes will be discussed by the department of biochemistry, the clinicians and the members of the vascular diseases clinic.

In the senior year two elective courses are offered: one on the history of medicine and the other in geriatrics.

Henceforth a qualifying examination will be given at the end of the second year.

Dr. Max M. Zininger has been appointed assistant dean.

A gift of \$10,000 has been received from Mrs. Christian R. Holmes, the income to be used in purchasing books and journals for the Christian R. Holmes Library.

Mrs. William C. Procter gave \$800 to maintain the Procter Fellowship in Surgery.

A donation of \$1,042 was placed to the credit of Dr. Lee Foshay for bacteriological research.

Dr. Gustav Eckstein received the Rosa F. and Samuel B. Sacks scholarship prize of \$500.

The Ohio Department of Public Welfare offers a four weeks course of post-graduate work to be given under the auspices of the University of Cincinnati and the General Hospital cooperating with the Longview State Hospital. The objective is to establish uniformity in the diagnosis, care and treatment of the mentally ill. The instruction consists of lectures, laboratory work, demonstrations, practical clinical courses.

George Washington University School of Medicine.

The custom of charging private patients in its university hospital for "purely professional services" by the laboratory departments will be abandoned, in accordance with a resolution adopted by the faculty. This action was taken in

order that such purely professional fees may be handled directly between the consultant and the patient.

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University of Buffalo School of Medicine

Dr. Kornel L. Terplan, research professor of pathology since 1930, has been appointed professor of pathology and bacteriology, succeeding Dr. H. A. Williams who retired after forty years of teaching.

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University of the Philippines College of Medicine

Since 1926, the number of applicants for admission to the college has increased from 107 to 151 for the session 1933-1934. The number accepted has varied between 84 and 119, the reasons for refusal being similar to those pertaining in the United States.

The number of freshmen failing to pass is considerably larger than it is here, although in the more recent years, fewer students have failed than in the earlier years; in 1926-1927, 44 per cent failed; in 1933-1934, 18 per cent failed. The percentage of failures in schools in the United States for that year was 14.1.

These statements also apply to the graduates. Of the 1926-1927 entering class, 63 per cent failed to graduate; of the 1929-1930 entering class, 35 per cent failed to graduate.

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Dartmouth Medical School

Dr. Alfred A. Bielschowsky, eminent German ophthalmologist, will carry on six months of special research work in the Department of Research in Physiological Optics. Dr. Bielschowsky, an authority on motor anomalies of the eyes, and until recently professor of ophthalmology and chief of the Eye Clinic at the University of Breslau, will work with the Department of Research in Physiological Optics on the analysis of abnormalities of vision.

The Department of Research in Physiological Optics at the Dartmouth Medical School has attracted world-wide attention for its work during the past ten years and particularly for its announcement last April of a hitherto unknown eye defect, named aniseikonia. The department has perfected the ophthalmoeikonometer, an instrument for determining and measuring aniseikonia, and has cooperated with the American Optical Company in developing isekonic lenses for the correction of this eye defect. In connection with its research work, the department conducts the Eye Section of the Hitchcock Clinic.



Long Island College of Medicine

The Long Island College of Medicine has received a bequest of approximately \$1,500,000 from the late Mr. Frank L. Babbott, who died in Brooklyn in December, 1933. According to the terms of the will, this fund will establish a special endowment fund, the income from which is to be applied to the furtherance of medical education and research.



Medical College of the State of South Carolina

Recommendations concerning the Qualifications for Appointment and Promotion adopted by the Faculty and approved by the Board of Trustees.—In presenting recommendations concerning the qualities and desirable attainments which should be considered by the Faculty and by the Board of Trustees in making their respective appointments to the teaching staff it seems well that certain elements of policy should be set down for the guidance of those who seek as well as for those who grant appointment or advancement.

It should be fully realized that one who is to teach and to guide those who are to enter the responsible profession of

medicine and its allied fields should possess personal and professional qualities and ability beyond the ordinary, that the teacher should, at least, be the peer of the pupil. Consequently, there are qualities which cannot be enumerated which should be considered and these will have to be judged by those who select the teaching members by general instead of specific rules.

One who is to teach in such a staff should be of a quality to stand with assurance before all men, to command the respect, both personal and professional, of his pupils, confreres and of the public.

Further, serious thought and care are necessary in a teacher's relations with students, that proper respect for the person, the position and the knowledge of the teacher may be a natural result within the students, without, however, creating a stilted position of superiority and frigidity. Teachers and students should be very close and their relations free and frank, but by the process of attracting students to a higher plane rather than on the more common lower and baser meeting ground, where "familiarity breeds contempt."

The especial recommendations here made concern specifically the members of the clinical teaching staff and of all others whose medical training is comparable. In those branches where general medical training does not necessarily apply the particulars may be varied to suit the branches, that is, where an internship is specified it can only apply, of course, to one in the broad medical field proper. In the case of a similar appointment in such a branch as chemistry, for instance, comparable conditions of training for that subject should prevail.

Likewise, where membership and participation in medical organizations are specified the case may be altered to suit a nonmedical person by translating to affiliation and participation in comparable societies in his particular field.

The attempt here is to recommend certain principles rather than rigid rules not subject to variation, certain minimal conditions which a medical teacher should meet, as a stimulus to attain not only to these but through them to higher accomplishments. It should be recognized that longevity of service is not within itself a prerequisite nor a reason for advancement.

With these ideas in view the following are recommended for guidance in the appointment and promotion of members of the teaching staff.

1. *Assistant.* It should be a prerequisite for this appointment that one have at least one year or more of full, rotating internship in a general hospital recognized for general internship by the American Medical Association, or that he shall have had an equivalent service. In the case of the preclinical branches the requirement of a year's experience may be waived in case of applicants submitting special recommendations. He should have demonstrated an earnestness of purpose and a conception of the fundamentals of ethical and professional conduct.

2. *Instructor.* For one to be considered for advancement to or appointment to instructorship, he should have as a prerequisite two or more years service as an assistant in this college, or its equivalent elsewhere. During this period of assistantship he shall have demonstrated his ability by not only a conscientious and capable performance of duties but by taking an active part in organized medicine, i.e., by membership in and faithful attendance at, at least, his County and State Medical Societies, in which he should participate in discussions or presentation of papers, and with the exception of nonmedical assistants, he shall have acquired membership in the A.M.A. He should have shown a particular inclination toward the branch in which he is to teach.

3. *Lecturer.* No one should be con-

sidered for advancement or appointment to lectureship unless he has demonstrated his ability by fulfillment of the duties and obligations of the two previous ranks, or the equivalent of such service elsewhere. He shall have been an active assistant in medical school and hospital work in the line in which he expects to progress, or an active assistant to one of outstanding ability in his line of work. He should have at this stage demonstrated some teaching ability and aptitude. It is expected that a man arriving at this rank shall contribute one or more original papers a year to his local or state societies or to other recognized medical or scientific societies, or shall publish such papers in recognized medical or scientific journals.

4. *Assistant Professors.* For recommendation to advancement or appointment to this rank one should be required, in addition to the attainments of lower grades, to present membership or fellowship in one of the recognized higher national special or licensing organizations in the line in which he is to teach, or its professional equivalent, i.e., membership or fellowship in one or more medical or scientific organization of equal or higher standing, or, at least, acceptable qualifications for such membership or fellowship. Those who hold at present this rank of assistant professor and have not already done so, should be expected to meet the requirements within three years.

5. *Associate Professor.* For recommendation for elevation or appointment to this rank one should have fulfilled the requirements of the previous grades or the equivalent, and should have shown particular ability and diligence in all parts of his college and hospital work and have demonstrated satisfactory independent teaching ability.

6. *Professor.* One occupying a full professorship should not only have met all the previous requirements but should have specialized in and limited his pro-

professional work to that concerned in the division of the medical field in which he holds the professorship. Those who have held the rank of full professor for five or more years should be considered as having met the prerequisite requirements of their rank. If they have not already affiliated with one or more appropriate higher medical or scientific organizations, it would be a good example for them to do so.

7. All faculty members of any professorial rank are expected to hold membership in and participate in organized medicine, i.e., attend and take part in the deliberations of medical societies, local, state and national, and, in addition, to be active in special medical and scientific societies. It is further expected that all members of the staff will give serious attention to research work and to the publication of scientific papers.

8. It is recommended that the Board of Trustees establish a policy of retirement to emeritus position for all teaching ranks at age of 70.



University of Louisville School of Medicine

Dr. W. W. Charters, Director of the Bureau of Educational Research, Ohio State University, has been appointed adviser to a survey to be conducted by the faculty of the School of Medicine. The survey will determine and correct defects of teaching in preclinical years.

Before the close of school last year the Council of the Medical School by a unanimous vote requested a study of defectiveness in teaching procedure in the first two, or preclinical, years. The request stipulated that, while the survey should be conducted by faculty members, an adviser be secured who neither was a doctor nor was associated with medical education.

The survey is purely voluntary on the part of faculty members. Any department of the School of Medicine which

desires to do so is invited to outline procedure for the investigation, submit it to the Medical Council for approval, and then review the literature bearing upon each problem.

Dr. S. I. Kornhauser spoke on "Medicine as a Vocation" in the series of vocational guidance talks presented from time to time throughout the year.

The Committee on Therapeutic Research of the American Medical Association has granted the Department of Physiology and Pharmacology the sum of \$200 for investigative work.



Stanford University School of Medicine

Gleb V. Anrep, M. D., D. Sc., F.R.S., professor of physiology, Egyptian University, Cairo, Egypt, will deliver the 1935 series of Lane Lectures in April.

The Lane Medical Lectures were established in 1896 by Dr. Levi Cooper Lane of San Francisco, the founder of the Cooper Medical College, which, in 1908, became the School of Medicine of Leland Stanford Junior University.

Every two years some eminent physician or scientist who has made a definite contribution in the field of medicine is secured to give a free course of lectures for medical students and the medical profession at large.

Dr. Anrep will give the twenty-fifth course of Lane Medical Lectures in 1935 from April 22 to 26, inclusive, the five lectures covering different phases of "Regulation of the Cardiovascular System."

These lectures will be given in Lane Hall, Stanford University School of Medicine, Sacramento and Webster Streets, San Francisco.



Medical College of Virginia

Dr. Frederick B. Mandeville, formerly chief roentgenologist at the Peralta Hospital, Oakland, California, became whole-

time professor of roentgenology and roentgenologist to the hospital division, on November 1.

Founders' Day of the ninety-seventh session was observed December 3. Dr. S. C. Mitchell, professor of history and political science at the University of Richmond, spoke on the past and future of the college.

Dr. Harry Taylor, chief of the staff, Saint James Hospital, Anking, China, recently lectured here.

Dr. Walter B. Cannon, professor of physiology, Harvard Medical School, lectured to students and faculty.

Dr. Iva Miller of New York City, vice president of the Medical Women's National Association, gave an illustrated lecture on December 5 to the women students of the college.

Exercises for Founders' Day of the ninety-seventh session were held at Monumental Episcopal Church, Richmond, on Monday, December 3. Dr. S. C. Mitchell, professor of history and political science, University of Richmond, delivered an address.

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University of Chicago Division of the Biological Sciences

One hundred and twelve new students matriculated this autumn. Nine are women. Half of them completed their pre-medical work at the University of Chicago while the other 56 came from colleges throughout the country as follows:

From the East: Two students each from Wesleyan University, Middletown, Conn.; Harvard, Columbia, Williams, and the University of Pennsylvania.

From the Middlewest: Two each from Carleton, Monmouth, Hope, Lake Forest, University of Illinois, and North Dakota State Agricultural College.

From the West: Two from the Utah State Agricultural College, and the University of Idaho.

Montana State, University of Washington, Stanford University and twenty-

seven other schools are represented by one student each.

A bachelor's degree is not required for matriculation but 55 of the students already hold this degree. The others have completed only three years of college work.

The language examination, given on October 1, constituted the first hurdle for this class. They came through rather disastrously with twenty-seven failures in German. All who took the French passed the examination.

The trustees of a fund created by Commodore Louis D. Beaumont, a former resident of Cleveland now residing in France, for the purpose, among other things, of aiding institutions engaged in scientific and educational work, have voted \$1,500 to the University for the support of special work being done in physiology by Dr. Julius M. Rogoff, under Dr. Carlson's direction. Dr. Rogoff has been cooperating with Dr. Carlson and Broda Barnes on the adrenal gland problem. Until recently he was an associate professor of experimental medicine at Western Reserve University.

Dr. Franz Weidenreich who has been under appointment in the Department of Anatomy as visiting professor of anthropology and anatomy since April 1, leaves in January to return to Frankfurt before going on to Peiping where he has been appointed to succeed Dr. Black in the P.U.M.C. His appointment there is also under the auspices of the China Geological Survey.

The Country Home for Convalescent Crippled Children has erected a bronze tablet in memory of Dr. Frank Billings. It is being placed in the home and bears the inscription "In memory of Dr. Frank Billings 1854-1932, the great physician whose wise counsel and unfailing encouragement were an enduring benefaction to this home."

Dr. Rei Hayashi is studying as a Rockefeller Fellow in the Department of Pedi-

atrices with Dr. Schultz and Dr. Kato for six months. He is making a special study of animals upon which complete extirpation of the adrenals has been performed.

Dr. Koch has received a grant of \$250 from the Council of Pharmacy and Chemistry of the A.M.A. to assist him in his investigations of the male sex hormone.

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University of Chicago School of Medicine

The National Research Council has awarded two new grants, one of which is an extension of the grant made to Dr. Lillie for work on the mathematical analysis of feather pattern as affected by sex hormones and thyroxin.

The other is to Dr. Louis N. Katz for the purchase of animals and chemical supplies in connection with his study of various factors operating to modify the coronary blood flow. Dr. Katz' work is being done in physiology.

The Bell Telephone Company has made a gift to the department of physiology of the apparatus loaned it last year to be used in the physiotherapy investigations being carried on by Dr. Simon Benson. The apparatus is valued at over \$1,000.

The Fli Lilly Company has offered an additional \$1,200 for the support of the clinical evaluation of the new principle of ergot which is being made under the supervision of Dr. Adair and Dr. Davis in the department of obstetrics and gynecology.

Dr. Reuterskiold, assistant professor of medicine, will be in charge of the Allergy Clinic after the first of the year and Dr. Huber will turn over to him the responsibility for it. He will, however, continue to serve in an advisory and consulting capacity.

Dr. Max Cohn was appointed honorary

lecturer in roentgenology in the Department of Medicine last July.

Dr. Virginia Jackola Reuterskiold is being appointed Assistant Resident in Roentgenology beginning January 1.

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New York University University and Bellevue Hospital Medical College

Two types of opportunity for graduate study have been outlined by the Department of Forensic Medicine and have been scheduled to start early in 1935. One is a continuation of the long course begun in 1934, which covers a period of three to five years. The second is a shorter course designed primarily for men now holding positions as coroners' physicians or who wish to prepare themselves for such positions. The course is open to graduates of approved medical schools. Formal instruction, occupying the morning hours during two semesters of five months each, will include conferences and work in the pathological and toxicological laboratories of the chief medical examiner of the City of New York. The work will be supervised by Dr. Charles Norris with the assistance of Drs. Alexander O. Gettler, Douglas Symmers, Harrison S. Martland, Armin V. St. George, Thomas A. Gonzales, Benjamin M. Vance, Milton Helpen, and Kurt Landé.

New Appointments: Sigmund A. Agatston, assistant clinical professor of ophthalmology; James Burns Amberson, Jr., assistant professor of clinical medicine; Carter N. Colbert, clinical professor of psychiatry; Edward B. Gresser, assistant professor of ophthalmology; James Swift Hanley, assistant clinical professor of otorhinolaryngology; Emery A. Roventine, assistant professor of surgery.

College of Medical Evangelists

The Alumni Association held a graduation assembly, December 9; Dr. Bernard Myers, president, clinical section, Royal College of Physicians of London, participated in the program.

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New York University School of Medicine

Carnegie Corporation of New York, \$43,750 for support of the medical college.

Anonymous gift of \$10,000 for support of the neurologic research laboratory.

Mead Johnson and Company, \$6,000 for vitamin research.

International Cancer Research Foundation, \$4,500 for research in cancer.

Eli Lilly and Company, the New York Foundation and an anonymous donor, \$3,756 for research in anterior poliomyelitis under direction of Dr. William H. Park.

Dr. William H. Park, \$3,000 to support the department of preventive medicine.

Lederle Laboratories, \$2,500 for experimental work in liver extract.

Josiah Macy Jr. Foundation, \$2,500 for the neurologic research laboratory fund for migraine.

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Boston University School of Medicine

Dr. Allan Winter Rowe, professor of chemistry and research at the Evans Memorial Hospital, died early in December. He was internationally known for his biochemical research and his work with the internal secretions of the body was particularly well known.

A native of Gloucester, he studied in Germany at the University of Gottingen, receiving his doctorate there in 1906 after his graduation from Technology. Upon his return to this country he spent

two years as a lecturer at Boston University, then becoming a professor of chemistry. From 1907 to 1914 he was associated with the Harvard graduate school in research.

He had been a member of the staff of the Evans Memorial Hospital since its founding in 1910 and had directed research since 1921. He was a trustee of the Boston Psychopathic Hospital and Norwich University. A member of the American Olympic committee, he was also affiliated with numerous scientific organizations.

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The University of Texas Medical Branch

Prior to the meeting of the Southern Medical which met in San Antonio, Texas, November 13-16, 1934, the School of Medicine was host to the following: Dr. Barney Brooks, professor of surgery, Vanderbilt University; Dr. Ed. Wm. Alton Ochsmar, professor of surgery, Tulane University of Louisiana; Dr. H. J. Morgan, clinical professor of medicine, Vanderbilt University; Dr. G. D. Lilly of New Orleans, and Dr. J. M. Mason of Birmingham, Alabama; the Southern Interurban Gynecological Association, with the following members present: Dr. Wm. D. Phillips of New Orleans, Dr. R. A. Ross of Duke University, Dr. W. T. Pride of Memphis, Dr. J. R. Garber of Birmingham, Dr. Lee F. Turlington, Dr. J. M. Weldon of Mobile, and Dr. T. B. Sellers of New Orleans.

Clinical and pathological Conferences were held for these men on three different occasions—for the surgeons on Monday, for the gynecologists on Tuesday and for the internists on Saturday.

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Tufts College Medical School

For the fourth consecutive year the students presented a medical historical pageant under the direction of Dr. B. Spector.

The first series represented women in medicine. A Chinese and a Japanese woman were represented in a discussion of the relative aspects of medicine in their respective countries. Sainte Hildegarde represented the age in which monasticism exerted a powerful influence over medical art.

Louise Bourgeois was a midwife to the Queen of France and wrote the first book on midwifery by a woman. Marie Boivin wrote a book concerning the pregnant woman and recommended strict cleanliness in obstetrics. She invented a pelvimeter and improved the speculum.

A discussion as to the relative merits of the surgeon and the midwife in obstetrics was carried on between a woman of the Eighteenth Century and Elizabeth Nihell.

The next series represented a resume of the important contributions in the history of the circulation. The third series portrayed contributions in the history of respiration.

Men and women students took the parts of the various characters presented.

University of Virginia School of Medicine

The Josiah Macy, Jr. Foundation has contributed the sum of \$500 to the Department of Biochemistry for research on cholesterol under the supervision of Dr. Alfred Chanutin.

Forty-eight physicians attended the postgraduate clinic held at the University Hospital November 16.

December 5-8, 1934, a postgraduate

course in ophthalmology and otolaryngology, sponsored by the University of Virginia at the request of the Virginia Society of Otolaryngology and Ophthalmology, was given at the Medical School. Lectures were delivered by Drs. E. Ross Faulkner, John R. Page, E. B. Burchell, John H. Wheeler, Conrad Berens, Bernard Samuels and John H. Dunnington, of New York City; Dr. George M. Coates, of the University of Pennsylvania; and Drs. H. S. Hedges, Fletcher D. Woodward, Edwin Burton, Vincent W. Archer and Oscar Swineford, of the University of Virginia. Thirty-two physicians registered for the course.

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University of Michigan Medical School

Dr. F. G. Novy has resigned the deanship to be effective at the end of the current semester. His successor has not been announced. Dr. Novy has been connected with the university forty-eight years.

Dr. G. Carl Huber, for many years professor and head of the department of anatomy, died, aged 69.

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University of Alabama School of Medicine

Dean Stuart Graves was elected president of the Tuscaloosa County Medical Society for the ensuing year at the meeting held December 14, which especially honored Dr. James S. McLester, president-elect of the American Medical Association.

General News

Corn Industries Research Foundation

A grant of \$2400 has been awarded to Dr. F. Schultz, professor of pediatrics in the University of Chicago, for a further study of fatigue in children, with some attention to the nutritional aspects involved.

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Mary Putnam Jacobi Fellowship

The Women's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship, \$1,000, for one year, available for postgraduate work in the medical sciences.

The fellowship is open to any woman graduate of an approved medical school. Each candidate must be endorsed by the head of the department in which her previous work has been done. The recipient of the fellowship must give full time to the study of her problem and this study must be made abroad.

Applications for 1935-1936 should be filed with the secretary of the committee by April 1, 1935, and must be accompanied by statements as to health, educational qualifications and proposed problem for investigation.

A report for publication will be required at the completion of the fellowship.

The secretary is Dr. Rose Cohen, 36 West 90th Street, New York, N. Y.

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The Huntington Library as a Research Institute

While most people know of the Huntington Library and Art Gallery of the University of California as a great museum of art treasures and rare books, and have enjoyed the exhibitions there, it is not generally realized that it serves an even greater purpose as a center of

research study. It is unique among the great libraries of the world in the provisions it has made to encourage and direct research and may properly be called a research institute.

Besides making its collections of manuscripts and books available to qualified readers, it gives financial support to scholars from all over the world to carry on studies at the Library. There is a permanent research staff of scholars who are experts in the fields so richly represented in the Huntington Library, English and American history and literature. In addition the Library has established Fellowships, which give an opportunity for a number of scholars to come there each year to carry on some definite research project. One advantage of this plan is that it brings together people working on related subjects with mutual gain to all. This intercourse with other scholars is one of the most delightful features of working at the Huntington Library and, of course, applies also to those who come there from the universities of our own state.

In the field of the History of Science, and particularly of Medicine, the Library is unusually rich in 16th and 17th century English works, and there are a number of the Fellows studying the scientific thought of these times and its influence on culture and literature.—*Alumni Bull. U. of Calif. Med. Sch.*, November, 1934.

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American Board of Psychiatry and Neurology, Inc.

The American Board of Psychiatry and Neurology, Inc., held its organization meeting in New York on October 20, 1934. Officers elected were: Dr. H. Douglas Singer, president; Dr. C. Macfie Campbell, vice-president; Dr. Walter Freeman, secretary-treasurer.

By-laws governing the organization were adopted as amended, and a committee consisting of Doctors Clarence O. Cheney, Edwin C. Zabriskie and Louis Casamajor was formed to consider plans for examinations, credentials and forms for application blanks. It is proposed to send application blanks to candidates soon after January, 1935, and the first examination will probably be held in New York in June, 1935.

Other members of the Board are Dr. Lewis J. Pollock and Dr. George W. Hall, Chicago; Dr. Franklin G. Ebaugh, Denver; Dr. Lloyd H. Ziegler, Albany; Dr. J. Allen Jackson, Danville, Pa., and Dr. Adolf Meyer, Baltimore. Further information may be obtained from the secretary, Dr. Walter Freeman, 1726 Eye St., Washington, D. C.



Fellowships in Physiology

Four fellowships of \$250 each, to be awarded for the fifteenth International Physiological Congress in Leningrad-Moscow in 1935, are announced by the Federation of American Societies for Experimental Biology. One fellowship will be awarded in each of the branches of biologic science represented by the four constituent societies of the federation; namely, the American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics and American Society for Experimental Pathology. Each candidate, who does not have to be a member of the federation, must be recommended by some member of the society representing the field of study or some other person familiar with the candidate's work. Candidates must

be under 35 years of age and must not have attained professorial rank or its equivalent, and each must present with his application a draft of a meritorious paper to be presented at the congress. Applications must be made before Jan. 15, 1935, to the secretary of the society which includes the field of study. Secretaries are: for physiology, Dr. Frank C. Mann, Mayo Clinic, Rochester, Minn.; for biologic chemistry, Henry A. Mattill, Ph.D., State University of Iowa, Iowa City; for pharmacology and experimental therapeutics, Dr. Eugene M. K. Geiling, Johns Hopkins University School of Medicine, Baltimore, and for experimental pathology, Dr. Shields Warren, Palmer Memorial Hospital, Boston.



Teaching of a Neurologist

In the October issue of the *Journal of Nervous and Mental Disease*, Dr. Percival Bailey's speech delivered before the International Hospital Association in Belgium last year, is published. It stresses his contention that it is logical for the neurologist to undertake also the surgical treatment of his patients because of his superior knowledge and interest in the tedious and painstaking manipulations necessary for successful neurosurgical operations. He, therefore, feels that the training of a neurologist is most successfully accomplished by a separate division or department including both neurosurgeons and neurologists and he outlines the plan in force in his division whereby the pupil who is accepted after an internship and only on promise that he will spend three years in training, receive a broad neurological and surgical experience.

Book News

Illustrations of Regional Anatomy

In five sections. By E. B. Jamieson, Department of Anatomy in the University of Edinburgh. William Wood & Company, Baltimore, 1934. Price, \$9.

Five sections of original illustrations based on blackboard diagrams used by the author to illustrate his lectures.

The illustrations have been produced in a form readily adaptable to students' and teachers' own ideas for practical use. They are fitted on loose-leaf pillars, and while numbered in the sequence which fits Dr. Jamieson's course, they can be rearranged by the student to suit any course. Since the printing is only on one side, the plates may be pasted in the student's notebook, if he prefers that plan.

There are five sections, obtainable as a set or separately, each in its own loose-leaf binding with paper cover. The complete set totals 203 plates, 258 illustrations, 137 of which are in colors and 66 in black and white.

Section I: Central Nervous System, 48 plates. Section II: Head and Neck, 61 plates. Section III: Abdomen, 37 plates. Section IV: Pelvis, 30 plates. Section V: Thorax, 27 plates.

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Surgical Applied Anatomy

By Sir Frederick Treves. Revised by C. C. Choyne, Professor of Surgery, University of London. 9th Ed. Lea & Febiger, Philadelphia. 1934. Price, \$4.

Originally written by the late Sir Frederick Treves, one of the world's foremost surgeons, it is now revised by Professor Choyne in the light of later knowledge. He has brought it thoroughly up to date, covering all the essential facts and details in anatomy which underlie modern operative surgery.

The book deals essentially with surgical anatomy but it contains much clinical diagnosis and treatment, and points out the surgical dangers and pitfalls. The work divides the body into six regions and each is amply covered. It includes ophthalmology, otology, rhinology, gynecology, urology, orthopedics and neurosurgery, as well as the usual general surgery. In spite of its conciseness, it is a very readable book, fixing the facts and correlating them with practical applications to medicine and surgery.

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Aids to Obstetrics

By Leslie Williams, Obstetric Surgeon, St. Mary's Hospital, Surgeon Queen Charlotte's Hospital, London. 10th Ed. Price, \$1.25.

Aids to Operative Surgery

By Cecil P. G. Wakeley, Senior Surgeon, King's College Hospital, London. 2d Ed. Price, \$1.25.

Aids to Osteology

By Phillip Turner, Consulting Surgeon, Guy's Hospital and N. L. Eckhoff, M.S., F.R.C.S., Assistant Surgeon, Guy's Hospital. 3d Ed. Price, \$1.50.

These three handy little volumes are published by William Wood & Company, Baltimore, 1934.

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Manual of the Practice of Medicine

By A. A. Stevens, formerly Professor of Applied Therapeutics in the University of Pennsylvania. 13th Ed. W. B. Saunders Company, Philadelphia, 1934. Price, \$3.50.

A good book for every medical student, a veritable "multum in parvo."

Green's Manual of Pathology

Revised and enlarged by H. W. C. Vines, M.A., M.D., Pathologist to Charing Cross Hospital, London; American edition, edited by Kenneth M. Lynch, M.D., LL.D., Professor of Pathology, Medical College of the State of South Carolina. 15th Ed. William Wood & Company, Baltimore. 1934. Price, \$6.50.

The whole volume has been largely rewritten. The original arrangement of the work into two parts, the one dealing with the general principles of pathology and the other with the special pathology of organs, has been retained.

Additional chapters have been introduced, and elsewhere much of the matter of the last edition has been expanded and revised in accordance with modern views.

Many new illustrations have been added, while many of the old pictures have been replaced by photographs.

The aim of the present edition is to offer to the student in his clinical years an adequate knowledge of general and special pathology, sufficient to carry him through the examinations before him and to give him some insight into the processes of disease.

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Physiology in Health and Disease

By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University. Lea & Febiger, Philadelphia. 1934. Price, \$9.

This book has been written for medical students, clinicians and progressive practitioners of medicine. Its objective is a complete understanding of the functional disturbances of patients leading to diagnosis in the physiological manner without sacrificing the biophysical, biochemical and mathematical aspects of physiology. To this end the author stresses the application of pure science and physiology, inculcates the general principles of physiology, outlines and surveys the functions of the various tissues, organs and systems, and correlates physiological altera-

tions produced experimentally with aberrant manifestations illustrated in patients.

The work includes a wealth of information of the greatest importance in medical physiology so organized as to make the essential facts easily accessible. The text is illustrated by numerous charts, graphs and figures, mostly new and designed to be pictorial summaries. The chapters are so organized that their sequence can be adapted to any plan of instruction. An unusually extensive bibliography has been incorporated.

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Manual of Diseases of the Eye

By Charles H. May, attending surgeon Bellevue Hospital, New York. 14th Ed. William Wood and Company, New York. 1934. Price, \$4.

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Wish-Hunting in the Unconscious; An Analysis of Psychoanalysis

By Milton Harrington, psychiatrist, Institution for Male Defective Delinquents, Napanoch, N. Y. The Macmillan Company, New York. 1934. Price, \$2.50.

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Laboratory Manual of Biological Chemistry

By Otto Folin, professor of biological chemistry, Harvard University Medical School. 5th Ed. D. Appleton-Century Company, New York. 1934. Price, \$3.

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Mental Hygiene in the Community

By Clara Bassett, consultant in psychiatric social work, Division on Community Clinics, The National Committee for Mental Hygiene. The Macmillan Company, New York. 1934. Price, \$3.50.

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Psychoanalysis and Medicine; A Study of the Wish to Fall Ill

By Karin Stephen, M.A., M.R.C.S., L.R.C.P. The Macmillan Company, New York. 1934. Price, \$2.50.

*Developmental Anatomy
A Textbook and Laboratory Manual
of Embryology*

By Leslie B. Arey, Professor of Anatomy in Northwestern University. 3d Ed. W. B. Saunders Company, Philadelphia. Price, \$6.50.

A very fine exposition of the developmental history of man as seen in the human embryo, presented by a master in this field as a teaching text; thoroughly revised and many chapters rewritten. Superscripts interspersed throughout the text agree with numbered entries in key bibliographies at the end of each chapter, thus offering excellent opportunities for reference reading.



*Science and Practice
of Surgery*

By W. H. C. Romanis and Philip H. Mitchener, Surgeons in St. Thomas Hospital. 5th Ed. Lea & Febiger, Philadelphia, 1934. Price, \$13.

Completely revised; sections on peritonitis, fractures, burns, varicose veins, eye, ear, nose and throat and anesthetics rewritten.

The first volume is devoted to general surgery and covers briefly the usual elementary subjects: antiseptics, sterilization, pre- and postoperative care of patients, inflammation, infections, hemorrhage and anesthesia. Volume II is devoted to regional surgery. The authors have prefaced the chapters with short accounts of applied surgical anatomy and physiology of the part discussed. The salient points in the operative technique of all the important operations are included at the end of each section. Throughout both volumes descriptions of operations and short accounts of the applied surgical anatomy and physiology appear in a distinctive type to separate them from the general clinical and pathological text.

The problems of differential diagnosis and treatment are fully dealt with and the problem of postsurgical treatment is

adequately covered. The work combines the virtues of brevity and adequacy and is compact and well organized, but remarkably comprehensive. The admirable organization makes it equally valuable as a textbook and a reference work. It is modern in every respect, every chapter being a monograph in its completeness. The illustrations are numerous and a useful innovation has been the inclusion at the end of each volume of an index covering the entire work and adding to its convenience as a source of reference.



American Medicine

By Henry E. Siegrist, William H. Welch Professor of the History of Medicine in Johns Hopkins University. W. W. Norton & Company, New York. 1934. Price, \$4.

This book is an account of the rise and progress of American medicine from the earliest times to the present. It opens with a graphic picture of the curious customs of the medicine men of the Indian tribes who preceded the white men on the continent, and then in historical sequence traces the practice of medicine from the necessarily primitive methods of Colonial days to the highly developed specialization of our times. An attractive feature of the book is the section on pioneers, presenting illuminating biographies of the great figures in American medicine from Rush and Drake and Beaumont, through the intermediate period of Gross and Sims and S. Weir Mitchell, down to Billings and Osler. Special sections are devoted to medical education and the development of medical schools and colleges; to the physician and the patient, and to the growth of hospitals and nursing. The concluding chapters tell the story of the amazing strides which this country has made in preventive medicine and in the more highly scientific aspects of medical knowledge. There is a comprehensive bibliography and two indexes, one of persons and one of subjects.

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